Toward an Appropriate Federal Aquaculture Role and Legislative Base

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December 1985

Canadian Technical Report of Fisheries and Aquatic Sciences No. 1419

86-1293/

Canadian Technical Report of Fisheries and Aquatic Sciences

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Cat. No. Fs 97-6/1419E ISSN 0706-6457

Correct citation for this publication:

Wildsmith, B.H. 1985. Toward an Appropriate
Federal Aquaculture Role and Legislative Base.
Can. Tech. Rep. Fish. Aquat. Sci. 1419: 88 p.

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ABSTRACT

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In a previous work, "Federal Aquaculture Regulation" Can. Tech. Rep. Fish. Aquat. Sci. 1252, the present author examined the current state of federal aquaculture legislation, found it inadequate and recommended that the federal role in aquaculture be further clarified. It was suggested that a discussion paper taking the form of draft legislation be prepared. This discussion paper would provide specific details on a proposed federal role and could be a focal point for further discussion. The present report is that discussion paper in legislative form.

The work was divided into two stages. The first was an overview of the component activities of aquaculture and the constitutional power of the federal and provincial governments with respect to them. It defines the federal role in general terms along constitutional lines of authority. This component of the report (Stage One) was mailed to each province to seek its reaction in advance of the final report. The second stage of the report consists of a Draft National Aquaculture Act and explanatory comments.

The Draft Act suggests creating an Aquaculture Development Council to plan the development of aquaculture on a national basis. The Council would be composed of representatives of industry and the provinces as well as the federal government. An Aquaculture Development Fund is recommended to fund the Council and its proposed programs and policies. Regulatory components are also suggested. An inspection system is proposed with respect to all aquaculture facilities and live aquatic flora and fauna being transferred to an aquaculture facility. The Draft Act recommends Ministerial approval for the introduction of non-indigenous species and strains, and the use of impact assessments before new species are introduced. Sea ranching and aquaculture in the offshore are to be regulated through a requirement for a federal licence. Many powers are given to the Cabinet to enact regulations to control other areas and to create mechanisms to promote aquaculture. The Draft Act is silent as to the basic functions of licensing aquaculturists and leasing tidal and non-tidal subaquatic lands within the bounds of the provinces. These subjects are intentionally left to be controlled by the provinces through their own legislation.

RÉSUMÉ

Wildsmith, B.H. 1985. Toward an Appropriate Federal Aquaculture Role and Legislative Base. Can. Tech. Rep. Fish. Aquat. Sci. 1419: 88 p.

Dans un document précédent intitulé "Federal Aquaculture Regulation" (Rapp. techn. can. sci. halieut. aquat. 1252), l'auteur a examiné la situation actuelle de la législation fédérale relative à l'aquiculture et l'a trouvé inadéquate; il a donc recommandé que le rôle du gouvernement fédéral dans l'industrie aquicole soit mieux défini. À cet effet, on a proposé la rédaction d'un document de travail qui prendrait la forme d'un projet de loi. Ce document fournirait des détails précis sur le rôle potentiel du gouvernement et pourrait servir d'élément central pour des discussions ultérieures. Ce document de travail, sous forme de loi, constitue le présent rapport.

Le travail a été divisé en deux parties. La première est une vue d'ensemble des activités reliées à l'aquiculture et les pouvoirs constitutionnels des gouvernements fédéral et provinciaux correspondants. Le rôle du gouvernement fédéral est défini en termes généraux conformément à la hiérarchie des pouvoirs constitutionnels. Cette première partie du rapport a été envoyée à chaque province afin d'obtenir leur réaction avant la publication du rapport final. La seconde partie comprend un projet de Loi nationale sur l'aquiculture et des commentaires explicatifs.

Le projet de loi propose la création d'un conseil de développement de l'aquiculture qui planifierait le développement de l'industrie au niveau national. Il serait composé de représentants de l'industrie et des provinces ainsi que du gouvernement fédéral. Ce projet recommande aussi la constitution d'un fonds de développement de l'aquiculture pour le financement des activités du conseil et des programmes et politiques proposés, ainsi que l'établissement de règlements. Il propose par ailleurs la création d'un système d'inspection de toutes les installations aquicoles et des animaux et des plantes aquatiques qui y sont transportés. Le projet de loi recommande l'approbation du Ministre pour l'introduction d'espèces et de souches non indigènes et l'utilisation d'évaluations de l'incidence environnementale avant de telles introductions. Le pacage marin et l'aquiculture dans les eaux hauturières feraient l'objet d'une réglementation par l'entremise d'un permis fédéral. Le Cabinet possède beaucoup de pouvoir pour promulguer des règlements visant le contrôle d'autres domaines et la création de mécanismes pour encourager l'aquiculture. Le projet de loi ne touche pas les fonctions fondamentales de la délivrance de permis aux aquiculteurs et de la location de zones tidales et non tidales dans chaque province. Ces domaines sont intentionnellement laissés au contrôle des provinces par l'entremise de leurs propres lois.

PREFACE

Formulation of strategies for aquaculture has to be based on proper information and understanding. Fundamental to any action in this area is the need to preserve Canada's fisheries resource base. Both the provision of information and the conservation of aquatic resources are central to the traditional role of the Department of Fisheries and Oceans.

This document presents an analysis and viewpoint on an appropriate federal aquaculture role and legislative base and was prepared at arms-length from governments. It is published for information and understanding as an adjunct to public discussions on the legislative framework for aquaculture. Much appreciation is due to the author Professor Wildsmith for this discussion paper. He is a Professor of Law at Dalhousie University in Halifax, and a respected authority in constitutional law who brings also to this task the perspectives of a trained biologist.

This report should not be construed as a statement of either established or anticipated policies of the Department of Fisheries and Oceans of Canada, and reflects only the view of the author.

Ottawa, Ontario
December 1985

G. Ian Pritchard, Director
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TOWARD AN APPROPRIATE FEDERAL AQUACULTURE ROLE AND LEGISLATIVE BASE

by
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A. STAGE ONE

1. Introduction

A consistently reoccuring theme amongst aquaculturists and those government officials and consultants associated with the industry is the need to determine the respective roles to be played by the provincial and federal governments in Canadian aquaculture. This concern culminated in July 1983 with a recommendation approved at the National Aquaculture Conference in St. Andrews, New Brunswick that action be taken "to review the problems of overlapping or competing [federal-provincial] jurisdictions."[1] Reference was also made to the reform of aquaculture regulations, which of course is impeded by uncertainty over jurisdictional questions. Similarly the present author delivered a paper on the subject of federal, provincial and municipal government roles in aquaculture which offered some suggestions on how competing powers might be reconciled.[2] More recently still, an Industry Task Force on Aquaculture sponsored by the Science Council of Canada stated that "[t]he question of provincial/federal jurisdictions must be resolved by agreement and is a priority in developing aquaculture in Canada."[3] Perhaps the most dramatic example of the pressing need to resolve jurisdictional problems is provided by the much-heralded Nova Scotia legislation. The Aquaculture Act (N.S.) defines "aquaculture"

to include only "aquatic flora and fauna over which the Minister exercises control."[4] Since the statute does not otherwise indicate what species or situations over which the Minister exercises control, this must be decided by the Minister on a case-by-case basis, depending primarily, I would submit, on whether the province had previously secured federal agreement on provincial control or was prepared to contest the issue. The lack of action to date in exerting control suggests to me that jurisdictional questions are impeding further provincial initiatives in Nova Scotia.

In tandem with these developments the Department of Fisheries and Oceans commissioned the present author to conduct a review of federal legislation pertaining to aquaculture with a view to its eventual reform. This resulted in "Federal Aquaculture Regulation", a report originally submitted in May, 1983 and available for inspection at the National Aquaculture Conference. That report has more recently (April 1984) been published as a Fisheries and Aquaculture Sciences Technical Report[5] and sent to a variety of provincial government officials and other interested persons. The Report recommended that draft legislation, by way of a discussion paper taking the form of federal legislation, be prepared, and this report is that paper. "Federal Aquaculture Regulation" provides the empirical background for the present report, which might be regarded as a second phase of a single project directed to suggesting a basis around which a consensus on federal and provincial roles might coalesce. The ultimate objective is to state in legislative language the specific provisions of what new federal aquaculture legislation should, in the author's view, look like.

This report has been prepared in two stages to allow for reaction and comment, especially by provincial officials involved in aquaculture. In the first stage, which extends to p. 17 of this report, the author attempts to identify the desirable scope of federal involvement in aquaculture and outlines three ways of structuring a federal legislative initiative. While it can hardly be suggested that this, or any other part of the report, represents federal government policy, it has been prepared under federal contract and with some advanced federal review. Upon the finalization of these two components of this report (i.e., identification of the federal role and three models for structuring reform), the first stage of the project ended and copies were mailed by the author to aquaculture officials in all ten provinces. Their written reactions to the proposed federal role and methods of structuring legislative reform were solicited on a voluntary basis.

As should be apparent, the roles not suggested in this report as being federal are by and large intended to be left to the provinces acting within their proper constitutional powers. This assumes that the author has been far-seeing enough to take all relevant areas into account. The intent is to divide aspects of aquaculture between the two senior levels of government, with complementary provincial legislation dove-tailing with the federal eventually following in those provinces concerned with aquaculture. It should be noted that uniformity of provisions from province to province may not be desirable or possible; this report can at least serve as a basis for discussing any need for province-by-province tailoring.

The second stage of the report is the actual draft legislation and supporting commentary. In preparing this the author has borne in mind the comments of provincial officials and any others who have made their views known. It should be emphasized that while responses from within government have been requested, the responses received should not be taken to represent the policy of any government. Similarly the final legislative suggestions do not form government policy and are only intended to present the views of one non-governmental observer as a basis for discussion.

2. The Federal Role

The purpose of this section is to identify the desirable scope of federal involvement in aquaculture. At one level the response to this question could be very broad, embracing all conceivable issues of government policy concerning aquaculture. This could entail a virtual blueprint for the development of aquaculture in Canada.[6] Such an objective is beyond the scope of this paper. Rather what is contemplated is an analysis confined to delineating constitutional lines within which appropriate federal regulatory jurisdiction ought to be exercised. While this line of attack is also evident in my less-detailed paper on federal, provincial and municipal roles in aquaculture,[7] I there organized discussion along functional lines from a culturist's perspective. Here I will use constitutional heads of power to organize discussion. The analysis will as a consequence provide results which are neutral in the sense that it attempts to assign areas on the basis of constitutional law rather than a grand plan of how things ought to be done in the best of all

possible worlds. It also must be understood that legislative jurisdiction cannot be conferred by consent and so constitutional law must be a basis for sorting roles, unless the constitution is to be reformed as well! Even if law is a basis for organization, it should be appreciated that no process is value-free; this will be particularly evident when dealing with areas where constitutional jurisdiction overlaps.

A. Constitutional Law in a Nutshell

Constitutional law deals with the powers of government, in particular for our purposes, the division of legislative jurisdiction between the federal and provincial governments. This division is set out in the Constitution Acts, 1867-1982, most particularly ss. 91, 92 and 95. A detailed analysis of these powers may be found in Aquaculture: The Legal Framework.[8] Three points merit special emphasis.

1. Aquaculture will be viewed for constitutional purposes by the courts as either a discrete subject mater or an aggregation of component parts. If it is viewed in the first way, the appropriate constitutional law question becomes: which level of government has jurisdiction over aquaculture as a whole? This is the way the courts have analyzed areas such as aeronautics, radio communication, the national capital and atomic energy. In order to be so treated the subject area must form a discrete, cohesive whole. Inflation is an example of a subject that has been said not to be a constitutional subject area.[9] Approaching aquaculture as a single matter points toward an all-or-nothing approach to constitutional jurisdiction:

aquaculture regulation and development would be, with limited exceptions, either all provincial or all federal. I have argued that if viewed in this way, a plausible outcome is provincial jurisdiction based on property and civil rights in the province (s. 92(13) Constitutional Act, 1867). It is possible, however, that heads of federal power could be held sufficient to give the federal government jurisdiction. Of particular note is agriculture (s. 95 Constitutional Act, 1867). If aquaculture is held to be embraced by the constitutional term "agriculture", then jurisdiction is concurrent and both levels of government may legislate. But in the event of a conflict federal legislation is paramount.

2. The Constitution Act, 1867 assigns the jurisdictions specified in ss. 91 and 92 exclusively. This means that if, for example, something is regarded by the courts as relating to fisheries, then it is exclusively federal, and if it is regarded as relating to property and civil rights, then it is exclusively provincial. The key is proper classification.

3. Even though the classes are regarded as exclusive and not overlapping, each level of government might have jurisdiction over a particular subject. These are known as areas of concurrent or overlapping jurisdiction. A classic example is highway safety. The province can prohibit and punish careless driving as an aspect of property and civil rights, while the federal government can outlaw the same conduct under its criminal law power (and has done so through the dangerous driving provision in the Criminal Code). In the aquaculture

setting, fish health should be viewed this way: the federal government can regulate the health of aquaculture stock to protect the wild fishery, while the province can do the same to protect property in the province, be it other culturist's private resources or the province's public resources. Wherever a concurrent jurisdiction exists, the doctrine of paramountcy applies. This doctrine tells us that if both the province and the federal government exercise their legislative jurisdiction, both legislative jurisdictions operate unless there is a conflict. If there is a conflict between the provisions, in the sense that someone is told to do inconsistent, opposing things, then the federal legislation is paramount and operates to govern the situation; the provincial legislation is rendered inoperative to the extent of the inconsistency.

B. Topics for Federal Responsibility

In approaching the question of the desirable role for federal aquaculture involvement and legislation, I have assumed that aquaculture is neither exclusively provincial nor exclusively federal. Indeed, even if one were to view the field as belonging to one government or the other, the remaining government would nevertheless have constitutional powers that could largely thwart aquaculture if inappropriately used. Thus the approach of preference is one of shared jurisdiction over aquaculture, with division being determined by the strength of the connection between each aspect of aquaculture and each level of government's areas of constitutional interest. In this context a further distinction suggests

itself between those matters that are regulatory and those that are stimulative or developmental. To a large extent stimulative measures can be the domain of both levels of government, at least in the sense that no constitutional impediment to promotion, singly or jointly, is evident. The more developmental measure, the better. When it comes to regulation or control, however, the less the better. Thus I have attempted to approach the division of areas of responsibility for regulation by assigning areas, where appropriate, to one level of government, and not both. Similarly, for areas that are stimulative rather than regulatory, I have avoided drawing lines of exclusivity.

The following is a chart sorting roles on a topical basis. It is followed by an analysis that then organizes the federal roles on the basis of heads of jurisdiction. It should be appreciated that this chart does not give the full flavour of the ambiguities and uncertainties that a detailed analysis of each topic would inevitably entail.

Topic	Government	Basis of Jurisdiction
1. Physical location		
A. Linkage to provincial and municipal planning	Provincial	Property and civil rights (s. 92(13))
B. Linkage to shipping and navigation	Federal	Shipping and Navigation (s. 91(10))
C. Rights to surface land	Provincial (assuming not federal lands)	Property and civil rights
D. Rights to subaquatic land and water space within provincial boundaries (leasing)	Provincial (assuming not federal lands)	Property and civil rights
E. As D but outside provincial boundaries	Federal	POGG (s. 91) and S.C.C. decisions and federal public property (s.91(1A))
F. Use of water within provincial boundaries	Provincial (putting aside question of	Property and civil rights

	Topic	Government	Basis of Jurisdiction
		interprovincial and international waterways)	
	G. As F but outside provincial boundaries	Federal	POGG (s. 91) and S.C.C. decisions and federal public property
	H. Construction of facilities	Provincial	Property and civil rights
2.	Organisms		
	A. Introduction of species	Federal and Provincial	Fisheries (s. 92(12)) and Property respectively
	B. Supply of - commercial	Provincial	Property and civil rights
	- wild	Federal	Fisheries
	C. Property rights in organisms within provincial boundaries	Provincial	Property and civil rights
	D. Property rights in organisms outside provincial boundaries	Federal	POGG
	E. Fishing For	Federal	Fisheries
	F. Transport - within province	Provincial and Federal	Property and civil rights and fisheries respectively
	- out of a province	Federal	Trade and commerce (s. 91 (2)) and Fisheries
	G. Sale - within a province	Provincial	Property and civil rights
	- out of a province	Federal	Trade and commerce
	H. Inspection - Fish health	Both or Federal	
	I. Escape	Both or Federal	
	J. Predator Control		
	- marine & migratory birds	Federal	Fisheries and Empire Treaty (s. 132)
	- land & air	Provincial	Property
	K. Feed	Provincial	Property
	L. Theft	Federal	Criminal Law
3.	Ranching, especially in travelling outside province	Federal	Fisheries, POGG and federal public property
4.	Marketing & Processing		
	- for sale within province	Provincial	Property and civil rights
	- for sale outside province	Federal	Trade and commerce
5.	General Licensing	Provincial	Various

6.	Insurance	Both	Spending powers
7.	Pollution - Protection from	Provincial	Property and civil rights
	- as a source of	Both	Property and fisheries
8.	Loans, Taxation, Pilot projects, R. & D., and other stimulative measures	Both	Various, but basically powers of taxation and unlimited spending ability (in constitutional sense)
9.	Statistics	Both	

To summarize this analysis, it renders unto the federal government regulatory control over those matters related to aquaculture which are connected in some way with five things:

1. Fisheries, i.e., commercial and sport fisheries in both tidal and non-tidal waters.
2. Extraprovincial trade, i.e., the processing and marketing of items for sale outside the province of production.
3. Shipping and navigation.
4. Criminal law.
5. Federal public property and areas outside any province (e.g. the offshore).

It also recognizes in the federal government the so-called spending power, i.e., the ability of the federal government to spend its money as it wishes, even in areas outside its legislative powers.

Thus, applying this to the exercise of federal powers in relation to aquaculture, it would mean that the federal government would control any aspects of aquaculture that could adversely impact on commercial or sports fisheries or on shipping and navigation, that involve trading or marketing

between the provinces or with foreign countries, that require the protection of the criminal law and that are to take place on federal lands or in tidal waters outside any province. A free rein is left for any federal or federal-provincial cooperative scheme that would help promote aquaculture through the expenditures of money, the provision of services and relief from forms of taxation. The legislative reform embodied in Stage Two would be directed to solidifying the federal role in respect of these matters.

More precisely, the following federal powers would be utilized in the ways indicated to control aspects of aquaculture:

(a) Fisheries (s. 91(12))

This I interprete as being limited to the wild fishery and relating to both its protection and enhancement. Thus, public aquaculture, i.e., the raising of fish by the federal government for enhancement purposes would be a federally controlled activity, although not one I see any necessity to refer to in new legislation. However, matters related to fish health, the introduction of non-indigenous species, the transport of fish from place to place, taking seed from wild stock, and any other possible impact of private aquaculture on the wild fisheries would be subject to federal control (although some cooperative mechanisms with the provinces, such as over species introduction, might be desirable).

(b) Shipping and Navigation (s. 91(10))

The location of aquaculture operations vis à vis the impact upon

navigation would be subject to federal control. This is already provided for in the Navigable Waters Protection Act[10] and Regulations and would not form part of new legislation.

(c) The Regulation of Trade and Commerce (s. 91(2))

Any time trade is engaged in from one province to another or one country into or out of Canada, it is subject to federal regulation. This predominately relates to shipping fish product into extraprovincial, largely international, markets. Such fish, fish processing and fish products are already subject to the Fish Inspection Act[11] and Regulations, and no change is envisaged.

(d) Criminal law (s. 91(27))

The Criminal Code deals generally with offences like theft (s. 283(1)) and break and enter (s. 306), and specifically with theft from an oyster bed (s. 284(1)) and breaking and entering a cage where fur-bearing animals are kept in captivity for breeding or commercial purposes (s. 306(4)(d)). The Criminal Code could be similarly amended to deal with theft from an aquaculture operation in general (not just oyster beds or layings) and breaking and entering the pens and enclosures culturists use. However, not all "criminal law" is contained in the Criminal Code and so, at least for discussion purposes, I propose to outline as part of the federal legislative initiative protection against theft and tampering with cages and equipment. These changes should probably be incorporated into the Criminal Code as amendments to the criminal law.

(e) Public Land (s. 91(1A)) and Peace, Order and Good Government

While the federal government owns and controls considerable land, most is ear-marked for special purposes or treated in special ways, making it inappropriate for such land to be included in general aquaculture legislation. Thus, while much land is tied up in national parks, Indian reserves (really under head 91(24) of the Constitution Act), and national defence establishments, these are not areas to which private culturists have access. Similarly, vast land areas are controlled by the federal government in the Yukon and Northwest Territories. But since the territories have their own internal legislative mechanisms with the potential to treat aquaculture in a manner akin to the provinces,[12] it does not seem appropriate to include these areas in aquaculture-specific legislation.

The offshore presents a different case. While there seems to be little reason for optimism over prospects for open sea mariculture in the near future, the possibility in the longer run suggests that it ought to be included in new regulatory legislation if at all feasible. This is especially so when sea ranching is taken into account. Sea ranching will almost certainly involve use of areas beyond the boundaries of any province and for this reason, not to mention the potential impact of ranching on the wild fish and the crossing of provincial boundaries on the Atlantic coast, sea ranching could not be conducted without regard for the federal interest. I am suggesting that the

federal interest is predominant and that sea ranching should therefore be an activity under federal regulatory control.

Other than these offshore aspects the concern of the draft legislation herein is with private aquaculture on lands and in areas within the provinces, and subject to general provincial jurisdiction.

(f) The Spending Power

One of the unstated premises of federation is that the central government should receive significant revenues so as to be able to wield economic power. The lion's share of tax revenues thus goes to Ottawa so that a strong influence over economic policies in Canada can be exerted by it. This influence is felt through the way the federal government chooses to spend its money. No constitutional bars have been raised by the courts over the way in which this money is spent. That is, the federal government is free to spend its money in areas under provincial jurisdiction, and influence policies by attaching conditions to the money, so long at least as the province is willing to accept the money. Thus it is now customary in Canada to look to the federal government to play a leadership role in development by the commitment of resources to the field in question.

It seems appropriate to expect such leadership from Ottawa in connection with aquaculture development. This path has already been taken at the federal level in the United States when Congress passed the National Aquaculture Act[13] (1980), a statute

which provides a planning mechanism for development. Canadian federal aquaculture legislation could take a similar tack, which I for one favour. Such an ambition could not realistically be expected from a lessor approach than the third model outlined in the next section - a new Aquaculture Act.

3. Three Models for Legislative Reform

The ultimate objective of this report is to draft specific legislative provisions as a basis for detailed discussion. One of the decisions this forces is how to fit these provisions into the existing framework. New provisions cannot be enacted in a vacuum. They must be in an acceptable format so as to integrate with what exists. Aquaculture reform cannot mean reform of the legal and legislative system in toto.

The existing legislative framework consists, primarily, of the Fisheries Act[14] and a host of regulations enacted under its authority.[15] These regulations consist of one set for each province and the Territories, and sets of regulations covering a variety of species and topics. Aquaculture-related provisions are scattered through these different sets. There is not full consistency and uniformity from place to place or regulation to regulation, a point painfully detailed in "Federal Aquaculture Regulation". At a minimum this plethora of regulations can be simplified and rationalized, without any attempt to consolidate them or provide a framework for development. This is the minimum model of what direction legislative reform might take.

A second model could focus on developing a single set of federal aquaculture regulations. This would accomplish all the objectives of the

first model and in addition promote consistency and uniformity. Duplication would be avoided and the sheer volume of regulations reduced. A single set of regulations could focus thinking around doing a better job with aquaculture and be a potential vehicle for some stimulative measures. Aquaculture as a subject area would be given greater emphasis than now is the case (since aquaculture is now seldom mentioned and given no individual profile in fisheries regulations). This model assumes that aquaculture regulations would be enacted under the authority of the Fisheries Act, with some possible amendment to that statute. Some limitations would result from this approach, especially if the only clear relation between aquaculture regulation and fisheries is the need to protect the latter from the former.

A third model with which to approach aquaculture reform is through the mechanism of an entirely new statute. This approach would encompass the other two, in the sense that all the gains of simplification, rationalization, consistency and uniformity could be achieved, and in addition aquaculture regulation could be severed from fisheries. A new Act could also provide a more comprehensive mechanism for development. This would be the most ambitious, all-encompassing approach, and would, if legislation is ultimately adopted, act as a signal that aquaculture has come of age. On the negative side, the road to new legislation would prove more rocky as more Parliamentary time would be required to usher a statute through enactment than would be the case for revised regulations. [This issue is now discussed in more detail at p. 29 under the title "Why a New Statute?".]

My recommendation is that we proceed for discussion purposes along the lines of the third model. The chief advantage of this approach is that it provides a format which would allow all of the issues involved in possible reform to be raised. It should ultimately prove easier to assess a complete package and if necessary pull back to a more realistic scale than to expand from a narrower perspective if models one or two proved inadequate. On the negative side, a broad approach may raise expectations for more to be delivered than is possible, both from the present author and from federal aquaculture officials. I think, however, that the overriding point is that this exercise is intended to produce a discussion paper, and not to be an end in and of itself to which anyone is firmly and irrevocably committed.

B. STAGE TWO

1. The Draft Statute

DRAFT NATIONAL AQUACULTURE ACT

An Act respecting a national framework for aquaculture development and the regulation of sea ranching and aquaculture in the offshore

1. This Act may be cited as the National Aquaculture Act.

2. In this Act, unless the context otherwise requires,

(a) "aquaculture" means the culture or husbandry of aquatic flora and fauna;

(b) "aquaculture facility" means any place where aquaculture is being, or is intended to be, conducted, and where one person conducts aquaculture at more than one site, each site shall be regarded as a separate facility;

(c) "aquaculture produce" means the aquatic flora and fauna which are being, or have been, cultured, whether live or dead;

(d) "aquatic" refers to fresh, brackish and marine waters;

(e) "aquatic flora and fauna" means all plants and animals, including fish, molluscs and crustaceans, and their seed and eggs, that normally grow in the natural environment in an aquatic medium;

(f) "Council" means the Aquaculture Development Council established by this Act;

(g) "Fund" means the Aquaculture Development Fund established by this Act;

(h) "fishery officer" means a fishery officer appointed pursuant to the Fisheries Act;

(i) "Minister" means the Minister of Fisheries and Oceans;

(j) "natural environment" includes an area outside an aquaculture facility not controlled by the person operating the aquaculture facility, whether or not the area has been altered or changed by human intervention;

(k) "sea ranching" refers to that form of aquaculture in which anadromous fish are intentionally released into the natural environment to feed and grow, in the expectation that the fish will return and be captured at or near the place of their release.

3. The purposes of this Act are

(a) to provide a framework for the planning of aquaculture development in Canada;

(b) to provide financial resources to plan and foster the development of aquaculture in Canada;

(c) to protect sea coast and inland fisheries from risks which may be associated with aquaculture;

(d) to regulate the sea ranching of anadromous fish; and

(e) to regulate the conduct of aquaculture in marine or tidal waters under the legislative control of the Parliament of Canada.

4. (1) This Act shall be under the supervision of the Minister.

(2) The Minister may delegate any duty, power, authority or function assigned by this Act or the regulations to him or those appointed by him, to whatever person he considers advisable, including those holding office in or employed by the government of any province.

5. (1) There shall be a body to be called the Aquaculture Development Council.

(2) The Council shall be composed of

(a) up to fifteen members appointed by the Minister, one of whom shall be designated Chairman, and only five of whom may be employed in the public service of Canada; and

(b) one member appointed by the Minister responsible for aquaculture in each of those provinces willing to participate.

(3) The Minister shall, before appointing members of the Council from outside the public service of Canada, consult with, and consider nominees proposed by such organizations representing the aquaculture industry as he deems appropriate.

(4) The Council shall seek to further the development of aquaculture in Canada as a viable industry, and without limiting the generality of the foregoing, shall

(a) constantly review the state of aquaculture to identify opportunities for development, including the identification of economic, physical, legal, institutional, social or other constraints to development;

(b) determine priorities for development;

(c) develop and recommend to the Minister policies and programs to carry out the priorities determined by the Council;

(d) advise the Minister on expenditures from the Fund;

(e) monitor the success of any policies and programs implemented;

(f) advise the Minister as requested on any matter related to aquaculture development.

(5) Members of the Council other than those employed in the public service of Canada or a province shall receive such renumeration as is fixed by the Governor in Council, and all members are entitled to be paid reasonable travelling expenses incurred by them in the performance of their duties while absent from their ordinary place of residence.

(6) The Council shall meet at such times and places as the Chairman may fix, or as a majority of the Council may require.

(7) The Council may make such rules as it deems necessary

(a) for the regulation of its proceedings, including the establishment of special and standing committees of its members, the delegation to such committees of any of its duties, the addition of non-voting members to its committees and the fixing of quorums for the Council and its committees; and

(b) generally, for the conduct of its activities.

(8) The Council shall report its findings and recommendations to the Minister and to the Ministers responsible for aquaculture in each province and shall, as soon as possible after the termination of each fiscal year, submit an annual report to the Minister respecting its operations under this Act for that year.

(9) The Minister may carry out, after consultation with the affected provinces and either directly or in cooperation with them, programs and recommendations of the Council.

(10) Unless the Council otherwise indicates, its findings, recommendations and reports shall be public documents to which interested persons shall have reasonable access at reasonable times.

(11) In order to carry out its objects the Council may utilize the services of such officers and employees employed in the Department of Fisheries and Oceans as the Minister may designate for that purpose.

(12) The Minister may provide such professional and technical advice and assistance to the Council as the Council requests.

6. (1) There shall be established in the Consolidated Revenue Fund a special account to be known as the Aquaculture Development Fund.

(2) There shall be credited to the Aquaculture Development Fund such amounts as are from time to time appropriated for that purpose.

(3) All amounts to be paid under this Act to plan and foster the development of aquaculture in Canada shall be paid upon the authorization of the Minister out of the Consolidated Revenue Fund and charged to the Aquaculture Development Fund.

(4) The purpose of the Fund is to provide financial resources to plan and foster the development of aquaculture in Canada.

(5) For greater certainty but without limiting the generality of subsection (4), the Fund may be used to finance, in whole or in part,

(a) studies and research into any and all matters pertinent to aquaculture development, including gathering information and obtaining professional and technical advice and assistance;

(b) pilot and demonstration projects;

(c) sources for seed or stock, or other aspects of infrastructure;

(d) workshops, seminars, courses or other educational experiences or training activities, including those related to business and management;

(e) publications;

(f) advertising, marketing and other promotional activities;

(g) loans and grants to practising aquaculturists, either directly or through provincial boards or institutions;

(h) insurance schemes, including reinsurance and coinsurance, covering any and all risks;

(i) compensation schemes with respect to any loss suffered by aquaculturists, whether lawfully caused or not; and

(j) the creation and operation of corporations, cooperatives, agencies, boards or other organizations related to aquaculture promotion, development or marketing.

(6) Nothing shall preclude the Minister from paying to the government of a province out of the Fund a contribution toward an aquaculture development project in that province.

7. (1) The Minister may appoint one or more persons to be aquaculture inspectors.

(2) Aquaculture inspectors shall carry out such functions as are assigned to them by this Act and the regulations and, without limiting the generality of the foregoing, shall, to the extent practicable, inspect and approve, subject to such conditions as are appropriate,

(a) all live aquatic flora and fauna being transferred to an aquaculture facility or from one aquaculture facility to another; and

(b) all aquaculture facilities, including the aquatic flora and fauna being cultured;

(3) In carrying out his duties, an aquaculture inspector shall have regard to

(a) the presence of disease or parasites;

(b) the likelihood of disease or parasites developing;

(c) the likelihood of disease or parasites escaping to the natural environment;

(d) the likelihood of the escape of cultured organisms to the natural environment;

(e) sanitary and other factors potentially affecting the quality of the aquaculture produce for human consumption, including the reputation of Canada as an exporter of such produce.

(4) An aquaculture inspector is empowered to

(a) confiscate or destroy, or order destroyed, aquaculture produce;

(b) order such measures to be taken as are reasonably necessary, including closing an aquaculture operation, to cleanse the operation of disease, parasites or unsanitary conditions;

(c) order such measures to be taken as are reasonably necessary to protect aquaculture produce from contracting or spreading disease or parasites;

(d) order such measures to be taken as are reasonably necessary to protect against the escape of cultured organisms, or disease or parasites;

(e) enter without warrant for the purpose of carrying out his duties under this Act, any place where aquaculture is taking place, or he on reasonable grounds believes that aquaculture is taking place;

(f) detain and search any vehicle, vessel, container or other object which he on reasonable grounds believes to contain aquaculture produce.

8. No person shall transfer live aquatic flora and fauna to an aquaculture facility or from one aquaculture facility to another without the approval of an aquaculture inspector.

9. (1) No person shall import into any province, introduce into any waters, or keep in any aquaculture operation a species or strain of aquatic flora and fauna not indigenous to the area of intended introduction or culture without the approval of the Minister, which approval may be given upon such terms and subject to such conditions as he deems appropriate.

(2) The approval referred to in subsection (1) shall be in addition to and not in substitution for any similar approval required under the laws of the province where the introduction is intended.

(3) Subject to any regulations made pursuant to subsection (5), before giving the approval refered to in subsection (1) in relation to the first introduction of a new species in a given area, the Minister shall require an assessment, in writing, of the potential impact of such an introduction on fisheries and the associated environment.

(4) The assessment referred to in subsection (3) shall be conducted on the assumption that the organisms in question, or some portion of them will escape or be released into the natural environment.

(5) The Minister may make regulations respecting

(a) procedures and precautions to be followed in applying for and granting the approval referred to in subsection (1);

(b) circumstances under which an impact assessment such as that referred to in subsection (3) shall be required;

(c) the terms of reference and conditions under which an impact assessment is to be conducted, including financial responsibility for the assessment and the selection of who is to conduct the assessment;

(d) species and strains whose introduction is permitted without assessment, or further assessment;

(e) species and strains whose introduction is prohibited;

(f) the geographic or hydrographic limits to be used in assessing whether a species or strain is or is not indigenous to an area of intended introduction; and

(g) defining for the purpose of this section the terms "species" and "strain".

(6) An impact assessment carried out under this section shall be

(a) a public document, available to a Canadian citizen or permanent resident upon reasonable request;

(b) submitted by the Minister to peer review by at least two qualified persons, which reviews shall likewise be public; and

(c) distributed by the Minister to the provincial ministers responsible for such introductions in all provinces that may be affected, at least four weeks before any approval is given.

10. (1) Subject to subsection (2), no person shall fish in any cage, pen, pond or other enclosure, or in, on or over a privately owned or leased area, used in the conduct of aquaculture, or within one hundred yards of such a place (or such other distance as may be specified by a fishery officer or an aquaculture inspector), without the permission of the owner or lessee of such enclosure or area.

(2) Where a bay, cove, estuary or other body of water used in the conduct of aquaculture should in the opinion of the Minister, be open for recreational or commercial fishing, he may issue permits upon such terms and conditions as he deems appropriate authorizing others to fish in the subject area.

(3) Without restricting the generality of the terms and conditions the Minister may consider appropriate, a permit may be granted specifying

(a) the area to which it applies;

(b) the length of time it remains valid;

(c) the species of fish that may be caught and retained; and

(d) any fee or compensation that must be paid to the Minister or to the owner or lessee.

11. (1) Notwithstanding the provisions of any other Act or regulations except those relating to the protection of species in danger of extinction, any person carrying on aquaculture may take such steps as are reasonably necessary to protect his produce from predation by aquatic fauna, including as a measure of last resort shooting or otherwise killing such predators.

(2) The provisions of the regulations under the Migratory Birds Convention Act authorizing permits to kill migratory birds causing or likely to cause damage to agricultural crops shall apply, mutatis mutandis, with respect to aquaculture produce.

12. Every person engaged in aquaculture shall mark all gear placed by him in any tidal or non-tidal waters

(a) so as to be visible to mariners, fisherman and others using the water;

(b) in such a manner as to identify the owner of such gear, including his name and mailing address or telephone number; and

(c) in accordance with any regulations which may be prescribed, including any regulations that may be applicable under the Navigable Waters Protection Act.

13. (1) Every person who intentionally damages any cages, pens, rafts, ropes, trays, floats or other gear or equipment used in an aquaculture operation is guilty of an offence punishable on summary conviction to a fine of five thousand dollars.

(2) Every person who breaks, cuts or otherwise damages any cages, pens, trays or other closures with intent to commit theft or to permit the escape of aquaculture produce, or who releases aquaculture produce, is guilty of an offence punishable on summary conviction to a fine of twenty-five thousand dollars.

(3) Every one commits theft who fraudulently and without colour of right takes, or fraudulently and without colour of right converts to his use or to the use of another person, the aquaculture produce of another, with intent to deprive, temporarily or absolutely, the owner of it or a person who has a special property or interest in it, of the aquaculture produce or of his property or interest in it, and is punishable in the same manner and to the same extent as for theft under the Criminal Code.

(4) This section shall not apply to those acting in relation to their own property or with the consent of the owner.

(5) In addition to or substitution for any other penalty prescribed by law, a judge may, upon sentencing any person convicted of an offence under this section, order that person to make restitution for any loss or damage suffered as a result of his unlawful activity.

14. Every person carrying on aquaculture shall provide to the Minister for statistical purposes such information as may be prescribed by regulation or as the Minister may reasonably request.

15. (1) No person shall carry on sea ranching without first obtaining a licence from the Minister.

(2) No person shall carry on aquaculture in tidal or marine waters outside of any province without first obtaining a licence from the Minister.

(3) A licence referred to in subsection (1) or (2) may be granted by the Minister upon such terms and subject to such conditions as he deems appropriate.

(4) A licence referred to in subsection (1) or (2) may be revoked or cancelled by the Minister if the licensee is in breach of any of its terms or conditions, or of the provisions of this Act or the regulations thereunder.

16. (1) The Minister may, with the approval of the Governor in Council, enter into an agreement with any province providing for

(a) the undertaking jointly with the government of the province or any agency thereof of

(i) projects for the development of aquaculture;
(ii) projects for the more efficient use and economic development of the coastal zone and land-water margin.

(b) the payment to the province of contributions in respect of the cost of such projects undertaken by the government of the province or any agency thereof.

(2) The Minister may cause to be prepared and undertaken, directly or in cooperation with the government of any province or any agency thereof, programs of research and investigation respecting the more efficient or effective use and economic development of the coastal zone and land-water margin in that province.

(3) For the purposes of this section, the expression "coastal zone and land-water margin" refers to that geographic and hydrographic area where land and water, both tidal and non-tidal, meet and extends to adjacent areas of land and water.

17. Every person violating any provision of this Act or the regulations for which a penalty is not otherwise provided shall be guilty of an offence and liable on summary conviction to a fine not to exceed five thousand dollars.

18. The Governor-in-Council may make regulations

(a) respecting exemptions from the provisions of this Act;

(b) respecting the inspection of aquatic flora and fauna imported into Canada or being transfered from area to area for the purpose of aquaculture, including the quarantining of organisms and permitting the release of only the offspring of organisms imported;

(c) respecting terms and conditions related to the importation or transfer of aquatic flora and fauna for the purpose of aquaculture;

(d) respecting the marking of aquaculture gear placed in tidal and non-tidal waters;

(e) respecting forms and procedures to apply for licences;

(f) respecting terms and conditions on which licences may be granted, including licence fees and performance standards to be met by the licensee;

(g) respecting the terms of occupation, including leases, of marine or tidal areas outside the boundary of any province

for the conduct of aquaculture, including exclusive rights of the occupier, lease fees, and performance standards;

(h) respecting the conduct of sea ranching, and of aquaculture in marine or tidal waters outside of any province;

(i) respecting information that all persons conducting aquaculture must provide to the Minister for statistical purposes, including the confidentiality of any such information provided;

(j) respecting insurance, including reinsurance and coinsurance, against any or all risks;

(k) respecting compensation for loss or damage;

(l) respecting compensation for aquaculture produce confiscated, destroyed or ordered destroyed by an aquaculture inspector;

(m) respecting the use of live feed, veterinary biologics, vaccines, antibiotics, drugs, wastes, fertilizers, pesticides, herbicides and chemicals in aquaculture;

(n) respecting the duties of aquaculture inspectors;

(o) respecting the application of the Fish Inspection Act and regulations enacted thereunder to aquaculture produce;

(p) respecting interagency, interdepartmental, intergovernmental or federal-provincial coordination, including the creation of coordinating committees;

(q) respecting the creation and operation of an aquaculture information centre or clearing-house;

(r) respecting the collection for the purpose of aquaculture of wild aquatic flora and fauna;

(s) respecting the creation, organization and operation of corporations, cooperatives, agencies, boards or other organizations related to the supply of equipment and materials, feed and seed stock for the conduct of aquaculture, and the purchase, sale, distribution or marketing of aquaculture produce, including the compulsory participation of aquaculturists in any scheme related to the sale or marketing of aquaculture produce outside the province of production; and

(t) generally for carrying out the purposes and provisions of this Act.

19. (1) The provisions of the Fisheries Act and regulations thereunder pertaining to the possession, taking, harvesting and sale of fish and marine plants, including closed seasons, minimum size, possession limits, sex or egg-bearing characteristics, method of capture, or the use of prohibited equipment do not apply in so far as the possession, taking, harvesting or sale is of aquaculture produce in connection with the conduct of aquaculture.

(2) Notwithstanding subsection (1) and for greater certainty, the fish health protection regulations and the sanitary control of shellfish fisheries regulations enacted under the Fisheries Act, as they may exist from time to time, shall apply, mutatis mutandis, in respect of aquaculture.

(3) Notwithstanding subsection (1), the Governor-in-Council may by order adopt and apply to aquaculture, in whole or in part, as they may exist from time to time, any regulations enacted under the Fisheries Act.

(4) Every person holding a licence, permit or authorization to conduct aquaculture according to the laws of a province shall be deemed to hold any such licence, permit or authorization to conduct aquaculture that may be required under the provisions of the Fisheries Act and regulations thereunder.

20. The Minister shall, as soon as possible after the termination of each fiscal year, submit a report to Parliament respecting operations under this Act for that year.

2. Explanatory Comments

A. Why a New Statute?

It will be recalled that the Stage One component of this report set out three models of how one might proceed with federal aquaculture reform, recommended proceeding at least for discussion purposes by drafting an entirely new statute, and then solicited from provincial civil servants their reactions. Generally, those responding from the coastal provinces supported the comprehensive approach of a new statute, while those from the inland provinces favoured a more modest approach, perhaps even simply maintaining the status quo. These reactions seem to coincide with the degree of commercial activity and interest in a province, and therefore the importance of aquaculture development to that jurisdiction. The inland provinces also were concerned that they maintain the same degree of control over aquaculture as they presently enjoy as a result of the federal delegation of administrative authority in relation to fisheries. Obviously, this report has proceeded by drafting a statute based on the most comprehensive approach. While this is justifiable for discussion purposes, a more pragmatic question facing federal policy makers is whether investing the time, energy and resources in a new aquaculture statute is worth the effort. Is it prudent to proceed toward a new statute when it might be easier to work within the framework of the Fisheries Act?

The answer to this inquiry must in the final analysis be a matter of judgment. It is not susceptible to a precise answer but depends on the relative assessment of a variety of factors. In my judgment, a National

Aquaculture Act is a result worth achieving. All will depend on the will of Cabinet, and Cabinet's attitude is likely to be strongly influenced by its priorities and the attitude and influence of the Minister of Fisheries and Oceans, the Prime Minister and his advisors, and other influential members. Aquaculture may not be well known to some of them, and so the idea of a new statute must be well presented.

Some of the factors which might influence the decision to proceed with new legislation are:

1. The Process

It should be appreciated that all legislative processes are complicated and time consuming. The more complicated the measures proposed the more complicated the process to achieve enactment. It is easier to amend regulations than to change existing legislation because regulations need only go through Cabinet while legislation must go through Parliament. Similarly it is usually more difficult to pass a new statute than to amend an old one because a new statute is likely to be more complicated and so require more scrutiny and debate. On the other hand, there may be more enthusiasm to strike out in the bold, new, publicly visible directions represented by a new statute than engage in what might be perceived as internal housekeeping.

As well, at least at the early stages, all legislative processes overlap. Adapting the description of the process given by former Deputy Minister of Justice, Deputy Attorney General of Canada and legislative draftsman Elmer A. Driedger in The Composition of Legislation,[16] the first

step is to settle the policy to be achieved. This discussion paper is intended to assist in settling policy by raising a host of issues and suggesting responses. The sponsoring department will have to consult internally on the policy. Other opinions within government might be sought. In our case, discussions with the provinces might be advisable. Once the policy is clear, instructions will be given to the legislative draftsman. Various drafts of the proposed Bill will be prepared and discussed with the sponsoring department. At some point the views from the deputy ministerial and ministerial levels will be incorporated.

Mr. Driedger gives an example of the time involved to formulate the final draft of "a short, normal bill" he once prepared. The sponsoring department established a small committee to consider the problem, and it took the committee three months to finish its work. The departmental heads considered the committee's report for two months before deciding to promote a bill. Cabinet then had to approve the policy (there is no indication of how long this took). After instructions were given to the legislative draftsman, three drafts of the bill were prepared and discussed with departmental officials. This added 36 days to the process. No time is saved, according to Mr. Driedger, by submitting a draft bill to the draftsman, since it is his job to produce a product that has been carefully checked and crafted to his standards. In the final analysis the draft that enters the legislative process is his responsibility.

Thus, it seems that a minimum of six months is likely before a new enactment in final form reaches Cabinet. Then it will be subject to the priorities of Cabinet and Parliament and must fit into the government's

overall legislative program. It will be easier if one only has to go to Cabinet. If one has to go to Parliament, the simpler the measure the easier it should be to accommodate along with other priorities.

2. The Will

As already mentioned, aquaculture is a subject which must be worked into other government priorities. Initially there is the question of priorities within the Department of Fisheries and Oceans. Since one department such as DFO will not likely dominate Cabinet's agenda, aquaculture must be worked into other departmental initiatives to form a legislative package that Cabinet can accommodate. The Cabinet will then have to work it into its legislative agenda so as to form a package Parliament can accommodate. Similarly Parliament will have to work it into its priorities so that delays between readings and in reporting from committees are minimized. All of these decisions require a relative assessment of the aquaculture legislation versus other matters. As in many fields of endeavour, if the will is there the objective can be achieved, and if the will is not there to push such a measure forward it is very likely to be overshadowed and lost. Since many people involved in these decisions may have a limited understanding of aquaculture, it might be helpful to produce a crisp, clear, high quality document highlighting appropriate facts and figures and showing the industrial and community development potential of aquaculture. The salmon portfolio prepared by Canada for the delegates at the Third Law of the Sea Convention comes to mind as an analog. It will also be essential for the organized aquaculture interests to actively support legislation. The will to do what is

necessary to promote aquaculture development may follow a clear understanding of the potential.

3. The Need

The preceding discussion of the process to be followed and the will necessary to proceed has largely illustrated negative factors: much time, effort and resources will be expended. A key question is whether this is really necessary on the scale of an entirely new piece of legislation.

The question of whether a new aquaculture statute is needed revolves around at least four factors. One is the conceptual relationship between fisheries and aquaculture. If there is to be no separate aquaculture statute, it will mean that aquaculture provisions must, in the future as in the past, be incorporated into the Fisheries Act and regulations enacted under its authorization. This is equivalent to saying aquaculture is a subset of the broader field of "fisheries" and therefore is a kindred activity. To take this position is analogous to saying that agriculture legislation should be part of a wildlife or lands and forests statute because both deal with plants and animals. Since no one in a modern context would equate agriculture with gathering and hunting wild plants and animals, it is inappropriate to perpetuate the misconception that the domestic culturing of aquatic plants and animals is closely allied to the capturing of wild organisms.

A second point militating against using the Fisheries Act to provide the framework for aquaculture is that the fisheries legislation would in my view require substantial amendment to make it fit the purpose. In order to

accomplish all of the objectives set out in the Draft Act, one would essentially need to pick-up the Draft and insert it as a block into the existing Fisheries Act. This could be just as complicated as having a separate statute. Another possible way of proceeding might be to enact the aquaculture provisions as regulations, but it appears that the provisions of the existing Fisheries Act authorizing regulations are not adequate for that purpose. The broadest authorization for regulations is contained in the introductory words of s. 34, which authorize Cabinet to "make regulations for carrying out the purposes and provisions of this Act". Nowhere does the Fisheries Act indicate what are its "purposes". While there are some provisions, such as s. 44 (setting aside waters for the "artificial propagation of fish") and s. 45 (oyster leases), touching on aquaculture, one would be hard pressed to maintain that the measures in the Draft Act are simply details to carry out the purposes and provisions of the Fisheries Act.

A third point relates to strategy and politics. Aquaculture needs the boost that the higher profile of a new statute provides. The mere existence of a National Aquaculture Act sends signals that the government is serious about this industry and accords it high recognition in its priorities. These signals will be picked up by individual entrepreneurs, by the investment community, by the provinces and hopefully by municipalities. It would be nice to see municipal planning taking the needs of aquaculture into account. Also, the aquaculture industry wants such a separate statute, and in all likelihood the commercial fishing interests would prefer to separate their concerns from those of the

culturists. It should also be appreciated that even if a National Aquaculture Act did not contain regulatory provisions, there would be nothing very unusual about using legislation to provide a framework for advisory, stimulative and developmental measures. The next section of this report refers to many statutes of this nature.

Finally, the need for a new statute will be influenced by what objectives are sought to be accomplished. Upon review of the matters incorporated into the Draft Act and anything else thought desirable, more limited objectives might be selected. The simpler the policy objectives, the more reasonable it might be to work within the framework of the Fisheries Act.

In summary, a less ambitious route than a new statute could be chosen if less ambitious objectives than those in the Draft Act are desired. In all likelihood, however, whatever objectives are chosen their incorporation into legislative provisions will require the Fisheries Act to be amended. This might prove as time consuming as a new statute.

B. Planning and Development

The draft statute attempts to bring a national influence to bear on aquaculture. While this national influence might be conceived of as being the federal government alone, it is important that the development of aquaculture in Canada as a whole be viewed as a mutual concern of both senior levels of government. Similarly, those with the greatest stake in resolving the issues involved, namely industry, must be a full partner in planning. Thus, as a principal feature of the proposed Act I have

suggested an Aquaculture Development Council, intended to be a planning and coordinating body made up of provincial and industry representives, as well as those from the federal government. This should provide direction for development through a spirit of cooperation derived from a shared purpose and goal.

Two of the most important matters involved in the development of aquaculture are planning and funding. The two are intimately linked. Money is likely to be misspent without proper thought in advance; and the best laid plans are for naught without funds to carry them to fruition.

The over-riding mandate of the Aquaculture Development Council, as the name indicates, is to guide the development of aquaculture in Canada. In short, it is responsible to advise on government initiatives so as to ensure aquaculture realizes its full potential. Three central features of planning have been incorporated into the mandate for the Aquaculture Development Council. First, those affected by the plan are involved in its formation. This should help ensure that the plans, even if otherwise rationally defensible, will meet the needs of the political constituencies involved. While centralized, national planning is desirable, and indeed essential for the expenditures of national revenues, a national plan cannot be imposed by the federal government. Second, planning must be based on an adequate information base. Thus the Council should have access to what data is available and be able to seek out, by its own inquiries, research and studies, whatever is relevant to its assessments. Third, the Council must be able to keep on top of current developments. It must be able to

monitor progress and adjust its plans accordingly. Planning is a continuous process. [Those interested in comparing the national framework for aquaculture development in the United States should consult Appendix "B" for a schematic overview.]

The make-up of the Council is significant. I started with the proposition that each province should be entitled to participate if it wishes to do so. This suggests a possible, perhaps likely, base of ten members, although the responses I received from the Stage One inquiry indicated that the inland provinces may attach less importance to aquaculture development. Next, I did not feel it necessary that the federal government be equally represented with the provinces, for at least three reasons: the Council would be chaired and therefore strongly influenced by a federal appointee; the provinces alone would not represent a majority of the members; and the Council's decisions would ultimately only be advisory to the Minister of Fisheries and Oceans, and therefore if not acceptable to the federal authorities would not be implemented anyway. Thus, while the federal minister can appoint up to fifteen members, only five are to be federal employees. The other ten members can represent the viewpoints and expertise of industry and other constituencies thought important, for example Indians, universities, consultants, commercial fishermen, recreational fishermen, fish processors, or fish marketers. The Draft requires the Minister to consult with industry organizations on the matter of appointments. Which specific organizations would be consulted is a decision for the Minister, but would likely include the Aquaculture Association of Canada and a host of provincial or regional organizations,

sometimes organized on activity-specific lines, such as shellfish or trout. No doubt this process may be politicized as each organization strives to be heard, but the principle of industry participation is too important to ignore. It might be noted that the creation of an advisory committee with industry representation both on the committee and in the selection process forms part of the California Aquaculture Development Act passed in 1979.[17] It is anticipated that a significant number of the ten members to be appointed by the Minister from outside the government would be actual growers with hands-on experience.

The Draft Act also establishes, in conjunction with the creation of the Council, an Aquaculture Development Fund. The purpose of the Fund is to bridge the gap between theory and reality. It is anticipated that through the normal appropriation process, the level of Parliament's commitment from time to time to aquaculture development would be manifest. The Council, armed with this knowledge, could then realistically develop priorities and programs based on what can be afforded. The Fund may then be drawn down to carry out those programs and policies of the Council which prove satisfactory to the Minister. In accordance with notions of ministerial responsibility, it seems appropriate to leave with the Minister the final decision on whether to spend potentially large sums of money in the ways proposed. Of course, it would seriously undermine the usefulness of the Council if the Minister regularly authorized expenditures without the Council's concurrence. The fact that the findings and recommendations of Council are to be made public will allow interested observers to judge the merits of the Council's views. As to the aspects of aquaculture in

relation to which the Fund may be expended, they are to be unlimited, provided only that the Minister agree with the Council's recommendations. Draft provision 6(5) provides examples of the range of what might be considered. It is, in the first instance at least, up to the Council to determine by planning and priorizing which particular expenditures are most beneficial. Notice as well that nothing prevents money from the Fund from being channelled through a province or provinces or other institutions, such as loan boards, or from being used in a cooperative venture with private or provincial government money.

Ample precedent exists in Canada for the creation of such a Council and such a Fund. No one example provides an exact parallel, but then circumstances vary from subject to subject. One of the more apt examples is provided by the Health Resources Fund Act.[18] Section 8 of the Act creates an advisory committee in the following words:

> 8. There shall be a committee to be called the Health Resources Advisory Committee consisting of eleven members, including
> (a) one member appointed by the lieutenant governor in council of each of the ten provinces; and
> (b) the Deputy Minister of National Health, who shall serve as chairman of the Committee.

The duties of the Committee are set out in s. 11:

> 11. The Advisory Committee shall
> (a) advise the Minister on any program for the development of health training facilities submitted to the Minister by the government of a province;
> (b) advise the Minister, at his request or on its own initiative, on matters relating to a health training facility in respect of which a province has requested a contribution under this Act, including the reasonable cost thereof; and

> (c) give consideration to and advise the Minister on such matters relating to the operation of this Act as are referred to it by the Minister.

At the same time the Act creates a Health Resources Fund. Section 3 is the operative provision, which states in part:

> 3. (1) There shall be established in the Consolidated Revenue Fund a special account to be known as the Health Resources Fund.
>
> (2) There is hereby appropriated for the purposes of this Act the sum of five hundred million dollars, to be credited to the Health Resouces Fund in such amounts as from time to time are required.

Section 4 makes clear that the money is to be used, upon application by a province, to contribute toward the cost of planning, designing, acquiring, constructing or renovating any building for use as a health training facility in a province. Payments are also tied to a five-year plan for health training facilities that the province must submit and of which the Council must approve.

Another, perhaps more familiar, example is provided by the Fisheries and Oceans Research Advisory Council Act, contained in the Government Organization Act, 1979.[19] Sections 3 and 4 indicate the details of the Council's structure:

> 3. There shall be a body to be called the Fisheries and Oceans Research Advisory Council, which shall be under the control of the Minister [of Fisheries and Oceans].
>
> 4. (1) The Council shall consist of a Chairman and not more than twenty-four other members.
>
> (2) A majority of the members of the Council shall be scientists.

(3) The members of the Council shall include fishermen and persons from
(a) departments, boards and agencies of the Government of Canada that have a specialized interest in the marine sciences;
(b) universities and other educational institutions;
(c) the fisheries industries and industries that have a specialized interest in the marine sciences; and
(d) the general public.

Section 6 states the Council's function:

6. It is the function of the Council to advise the Minister on all matters referred to it by the Minister relating to
(a) fisheries research and the marine sciences including technological developments in those fields;
(b) the scope and adequacy of the science policies and programs of the Department of Fisheries and Oceans, having regard to the duties and functions of that Department and the science policies and international obligations of the Government of Canada; and
(c) the coordination of research and development programs in the fields of fisheries research and the marine sciences.

While a research fund is not created by these provisions, each member of the Council other than those employed in the public service of Canada is entitled to fees or remuneration and "reasonable travel or other expenses incurred by him in the course of his duties under this Act" (s. 9), and the Council is authorized to "expend such sums as are necessary for its work" from "the moneys appropriated by Parliament for the work of the Board" (s. 11 of the predecessor statute, the Fisheries Research Board Act[20]).

Under the Fisheries Development Act,[21] the Minister is authorized to undertake or assist in financing a variety of development projects (s. 3) and may make payments to persons with respect to cold storage and bait

freezing facilities and constructing and equiping fishing vessels (s. 5). No particular amount of funds are appropriated to these purposes and no specific advisory or oversight body is mandated. The Minister may, though, "establish such advisory committees as he deems necessary and appoint the members thereof" (s. 7(1)). The Fisheries Development Act should also be read in the context of the Fisheries Improvement Loan Act,[22] which sets up a system of loan guarantees with respect to loans by defined lenders to fishermen for purposes basically related to development or improvement of primary fishing enterprises. As well, other instruments of federal fisheries policy should be appreciated, such as the Fisheries Prices Support Act,[23] (which includes a Fisheries Prices Support Board), the Fishing and Recreational Harbours Act,[24] the Freshwater Fish Marketing Act,[25] and the Saltfish Act.[26] The inference to be drawn from the array of statutory instruments is that fisheries development has been planned incrementally over time. Fisheries policy has not been forced to blossom in full flower overnight; it has had the luxury to evolve as circumstances in this historically important industry required. Aquaculture is forced by a competitive world into rapid maturity if valuable opportunities and the spirit of enterprise are not to be lost.

Another area where federal policy has been developed with the aid of an advisory board is fitness and amateur sport. Section 7 of the Fitness and Amateur Sport Act[27] provides, in part:

> 7. (1) There shall be a Council to be called the National Advisory Council on Fitness and Amateur Sport, consisting of not more than thirty members to be appointed by the Governor in Council.

> (2) Each of the members of the Council shall be appointed to hold office for a term not exceeding three years.
>
> . . .
>
> (4) Of the members of the Council, at least one shall be appointed from each province.

Section 9 deals with the function of the Council:

> 9. (1) The Minister may refer to the Council for its consideration and advice such questions relating to the operation of this Act as he thinks fit.
>
> (2) The Council shall give consideration to and advise the Minister on
> (a) all matters referred to it pursuant to subsection (1), and
> (b) such other matters relating to the operation of this Act as the Council sees fit.

Presumably s. 9(2)(b) includes reference to whether the objects of the Act are being carried out. These objects are set out in s. 3, and are "to encourage, promote and develop fitness and amateur sport in Canada...." The section then goes on to list ten particular ways in which these objects might be carried out. Most of the particular ways mentioned, e.g., training of coaches, assistance for Canadian participation in international sport, providing bursaries or fellowships, and arranging conferences, involve the expenditure of money. This is dealt with in s. 10:

> 10. The Minister of Finance shall, upon the certificate of the Minister, authorize payment out of the Consolidated Revenue Fund of such amounts not exceeding in the aggregate five million dollars in any one fiscal year as may be required for the purposes of this Act.

Other advisory boards include:

> Defence Research Board[28]
> Canada Employment and Immigration Advisory Council[29]
> National Design Council[30]

An alternative model to the advisory board approach is provided by scientific research councils, the Canada Council and the Economic Council of Canada. These councils are not just advisory but are incorporated into legal entities which, while still agents of Her Majesty (i.e., Crown corporations), can acquire property and contract in their own name. They expend, by their own power, money appropriated by Parliament for their work or money otherwise received by the councils. Most of these councils have slightly in excess of 20 members. This degree of autonomy has been conferred on the councils indicated in the names of the following statutes:

> Social Sciences and Humanities Research Council Act[31]
> Natural Sciences and Engineering Research Council Act[32]
> Science Council of Canada Act[33]
> National Research Council Act[34]
> Medical Research Council Act[35]
> Canada Council Act[36]
> Economic Council of Canada Act[37]
> Standards Council of Canada Act[38]
>
> (See generally the Government Organization (Scientific Activities) Act, 1976.[39])

It should be clear that the kinds of boards and councils previously mentioned are directed to promoting and developing in a rational way the subject areas in question. They deal with complex areas where competition exists for scarce funds, and where expertise is needed to judge priorities. These functions, however, are discrete from those of many administrative boards or tribunals, whose functions are of a regulatory nature. Examples of the latter are the Canadian Radio Television and Telecommunications Commission, the Canadian Transport Commission, the National Energy Board and various marketing boards. In the aquaculture

context we are concerned about planning and development, and not, at least initially, with regulation by a board or tribunal.

The Industry Task Force on Aquaculture sponsored by the Science Council of Canada has recommended a different organizational format. Instead of a national council or committee, it recommends a system of regional aquaculture coordination committees. In the words of the Task Force: "Regional diversity and species diversity require regionally developed strategies for the commercialization of candidate species."[40] This decentralized view is also expressed by Cook and Drinnan, who state:

> This planning would be most effectively achieved by the establishment of federal/provincial Aquaculture Resources Planning Boards, eventually one for each province. There could be federal and provincial co-chairpersons, with equal formal representation from both levels of government with participation by the industry. These Boards would be tasked with the identification of the planning elements necessary for the development of the aquaculture industry in each province. The primary task for Aquaculture Resource Planning Boards would be to develop a comprehensive aquaculture development plan for the province, ...[41]

While this approach is unobjectionable as far as it goes, a further problem in my view is the coordination of the regional committees. Each will compete for scarce public funding, and the potential for duplication and overlap exists. The Task Force does refer to the need for a national policy for aquaculture and suggests the Department of Fisheries and Oceans be designated as a federal lead agency with some coordinating functions. Within the Department there is to be a National Aquaculture Secretariat which amongst other functions would coordinate and facilitate regional acquaculture activities at a national level. It seems that the sensitive role of priorizing among regions is being left to federal civil servants.

The proposal embodied in the Draft Act is intended to allow broad participation in national coordination and at the same time allow for regional coordination. Section 5(7)(a) of the Draft authorizes the Council to establish and delegate duties to "special and standing committees". These committees could be organized on regional lines, or if thought desirable, in other ways, such as by species or by problem area. The Council can add non-voting members to these committees to round out representation of interests and to add expertise. Thus the National Act would allow the approach recommended by the Task Force to be implemented if the Council thought it desirable, and as well would ensure that the work of the sub-committees was integrated into a national policy set by industry and the provinces as well as the federal government.

Logistical support for the Council is another area of concern. To be effective the Council must be active, and this means work must be done by more people than just Council members. Outside studies and research can be done on a contract basis, drawing down on the Development Fund. But even so the contract work must be commissioned, overseen and evaluated, and basic secretarial assistance must be provided. At least three approaches to this problem suggest themselves. One would be to make the council fully independent by allowing it to hire its own permanent staff. This is the model used in, for example, the Standards Council of Canada Act.[42] Section 14 sets out the structure:

> 14. (1) The Governor in Council, on the recommendation of the Council, may appoint an executive director of the Council.
>
> (2) The executive director is the chief executive officer of the Council and, subject to

> subsection (3), has supervision over and direction of the work and staff of the Council.
>
> (3) The Council may
> (a) appoint such other officers and employees as are necessary for the proper conduct of the work of the Council; and
> (b) prescribe the duties of the executive director and the other officers and employees of the Council appointed pursuant to this subsection and the terms and conditions of their employment.

Section 14 goes on to say remuneration and expenses can be fixed by the Council with the approval of the Treasury Board and that others with a technical or specialized knowledge can be employed to advise and assist the Council on the basis of remuneration and expenses approved by the Treasury Board.

The Canada Council is run on a similar model. Section 5 of the Canada Council Act[43] provides:

> 5. There shall be a Director and an Associate Director of the Council to be appointed by the Governor in Council to hold office during pleasure.

These are paid positions. Additionally section 7 indicates:

> 7. The Council may appoint and pay the remuneration and expenses of the employees and the technical and professional advisors necessary for the proper conduct of its activities.

A basic problem with this model for aquaculture is that it likely would result in duplication of bureaucracies that already exist, predominantly in the Department of Fisheries and Oceans and to a lesser extent in provincial departments.

A second approach, and the one recommended by the Industry Task Force, is to realign an existing structure from normal departmental functions to

the Council. Thus the Task Force states: "The current Aquaculture and Resource Development Branch should be up-graded to a National Aquaculture Secretariat reporting directly to the Deputy Minister of Fisheries and Oceans." This Secretariat would both provide logistical back-up to the regional committees the Task Force recommends, and develop "a national policy for aquaculture based on needs identified by the coordinating committees".[44] A problem in my view with this approach is that it leaves the development of a national policy with federal civil servants and thus deprives the regional committees of much of their independence. Placing the idea of a Secretariat into the context of an independent Aquaculture Development Council, another problem is that the Secretariat would be responsible to the Council and thus strip the Department of its independence. Put another way, Fisheries and Oceans must maintain its own aquaculture capability so as to be able to evaluate the work of the Council and properly advise the Minister. The notion is that both the national coordinating and priority-setting body and the responsible government department be independent in their outlook; neither is to be the servant of the other.

This leaves as a third possibility something in between these extremes. The Draft adopts the approach utilized in respect of the National Design Council. Basically, existing federal civil servants are directed by the Minister to work under the instructions of the Council. Thus s. 12 of the National Design Council Act[45] provides, in part:

> 12. (1) In order to carry out its objects the Council shall utilize the services of such officers and employees employed in the Department of

Industry, Trade and Commerce as the Minister may designate for the purpose.

Section 12 goes on to limit the Council's ability to get professional or technical assistance outside the public service of Canada: Treasury Board approval is required. This does not seem a desirable limit on the Aquaculture Development Council since a large part of its work will be research and studies, including advice, secured by contract or grant. Thus the Draft suggests using existing personnel in the Department Fisheries and Oceans, who could, on a permanent or temporary basis, provide logistical support, advice and assistance. The Council could, nevertheless, with Ministerial approval, seek outside advice and assistance.

Another important provision of a developmental nature is s. 16 of the Draft Act. The power given to the Minister to enter into projects of a developmental, research or investigative nature related to use of the coastal zone and land-water margin is intended to raise the possibility of undertaking an inventory of resource capabilities for this geographic area similar to that undertaken by the Canada Land Inventory. The language attempts to mimic, with necessary adjustments, the authorizing provisions for the Canada Land Inventory contained in the Agricultural and Rural Development Act (ARDA).[46] Notice that the language is permissive and not mandatory. It is wide enough for a complete inventory to be undertaken, as a basis for wider considerations of coastal zone management, but a more modest inventory directed only at aquaculture potential is equally possible. This inventory could act as an information base to permit better decisions by the federal, provincial and municipal governments in planning activities under their respective jurisdictions. This information is

obviously important to short-term siting questions and to longer-term considerations, such as preservation of natural capacities. An aquatic resource survey to determine the areas with the most potential for aquaculture development is also recommended by Cook and Drinnan.[47]

The following description of the land inventory system should be equally applicable to coastal concerns:

> The Canada Land Inventory is a cooperative federal-provincial program ... designed to provide a basis for land use planning at the municipal, provincial and federal levels of government. It includes assessment of lands in the settled portion of Canada, according to their use capability for agriculture, forestry, wildlife and recreation as well as surveys of present land use. As the Canada Land Inventory is an integrated approach to assessing land capabilities for various uses, the classifications used for all sectors have the same framework and follow the same general criteria.[48]

The parallels are obvious. Without assessment, areas with unique long-term aquaculture capacities may be thoughtlessly lost to shorter-term exigencies.

C. Regulation

While the creation of the Council and Fund and the undertaking of an inventory are of a developmental nature, other aspects of the Draft Act are directed to regulation. Regulation has two thrusts. One is to protect aquaculture from others; the second to protect others from aquaculture. A major premise of the Draft Act is that most regulatory aspects concerning activities in a province are properly subject to provincial control. It is anticipated that the provinces will act to fill any regulatory void thus created. There are, however, several matters over which the federal

government has exclusive jurisdiction or an important concurrent jurisdiction.

The exclusive legislative powers of relevance are those over fisheries, navigation and the criminal law. Thus, as a supplement to provincial legislation ensuring a private property interest in the produce being grown, I have included in the Draft a prohibition on fishing in relation to culturing so that the two activities do not conflict. To put the matter another way, the Draft ensures that aquaculture has priority over commercial or recreational fishing for the limited geographic areas where culturing takes place. It should be noted that the constitutional competence of the province to restrict fishing is unclear, and therefore the Draft Act clarifies any possible uncertainty. The Minister may, however, allow fishing if it is desirable, as it might be if a large area such as a bay or estuary is closed off to pen fish, or where a shellfish grower has no interest in natural populations of fin fish or vice versa.

A similar point may be made about predation. Marine mammals as well as fish have traditionally been regarded as being embraced by the fisheries power (and some birds like those covered by the Migrating Birds Convention Act[49] are under federal control) and so doubt exists about the ability of a province to authorize a culturist to destroy these fauna. The damage which predators can cause was dramatically demonstrated in December, 1983 when marauding grey seals caused losses of about one million dollars to Bay of Fundy salmon growers.[50] The Draft Act provides the authorization to shoot or kill predators as a measure of last resort. Excepted out of this provision to destroy predators are species in danger of extinction.

Section 9 of the Canada Wildlife Act[51] authorizes the Minister of the Environment, "in cooperation with one or more provincial governments having an interest therein", to "take such measures as he deems necessary for the protection of any species of non-domestic animal in danger of extinction". Regulations enacted by Cabinet specifying such measures are authorized by s. 13. Sections 22-27 of the Migratory Birds Regulations[52] deal with migratory birds causing or "likely to cause damage to crops or other property". If scaring is not sufficient, a permit may be granted to kill the migratory birds. Some ambiguity is created in ss. 25 and 26 with respect to aquaculture. Section 26 refers to "a person who owns, leases or manages an area of land" and specifies the permit is only good until "the crop" has been removed. Section 2 defines "crop" as "an unharvested agricultural crop". Likely an aquaculture crop is not included. Section 25 is broad in referring to "serious damage to any property", but indicates that the permit is to authorize "all persons residing in that province or a part of that province to kill" in the area designated the migratory birds. The needs of aquaculture again do not neatly fit into this provision. It would be desirable to clarify the position of aquaculture, perhaps by amending the definition of crop and adding a definition of land that includes subaquatic land in the Migratory Birds Regulations. The provision in s. 11(2) of the Draft merely acts as a red flag to this effect.

A final area where federal legislation is required to assist aquaculturists from other activities is protection from theft and vandalism. Again these matters are likely exclusively federal under the criminal law power and provincial legislation directed to these concerns

might be invalid. Thus federal legislation is likely necessary if any supplementation or clarification of the Criminal Code is desirable. Some doubt might exist about whether the theft provisions of the Criminal Code reach aquaculture, especially since the interest of a culturist in his produce (traditionally viewed as wild animals) may be uncertain. As well the present Criminal Code sees fit to mention specifically oysters (s. 284) and breaking and entering "a pen or enclosure in which fur-bearing animals are kept in captivity for breeding or commercial purposes (s. 306(4)(d)). It would probably be more desirable to include aquaculture protection directly in the Criminal Code, although it might be more expedient to deal with these matters in an aquaculture statute. The three prohibitions in s. 13 of the Draft relate to mischief (or vandalism), break and enter and theft respectively.

Turning now to the protection of other interests from the possible impacts of aquaculture and regulating aquaculture itself, the Draft Act addresses five issues: the introduction of new or exotic species, protection against disease and parasites, the marking of gear, the licensing of sea ranching and the licensing of aquaculture in tidal waters outside of a province. Exotic or non-indigenous species pose a difficult problem. Aquaculture, like agriculture, depends on manipulating what is grown as well as the environment in which the growing takes place. Thus culturists often bring organisms to places where they have not been before, and at the same time genetically manipulate and select strains for desirable commercial characteristics. In this manner native stock are potentially threatened both by new species and new strains. The federal

government has jurisdiction over non-indigenous organisms in order to protect the sea coast and inland fisheries; the province has a like jurisdiction in order to protect its natural environment.

The Draft Act deals with this in s. 9. It requires approval by the federal government before any non-indigenous species or strain of aquatic flora or fauna can be imported or introduced into any waters. In addition, a province may require its approval before introducing exotic species, in which case permission must be obtained from both levels of government. Likely a process requiring dual approval can be satisfactorily streamlined through a joint federal/provincial committee of civil servants, as is done in B.C. The Act, however, attempts to improve upon the existing mechanisms by introducing to this field the concept of impact assessment, a notion now generally accepted as useful in environmental decision-making. The premise is that better decisions about the introduction of new species can be made if a formal assessment takes place. That assessment can be subjected to a process of peer review and public input and criticism. Then the respective political decision-makers can decide if the benefits outweigh the risks. Notice that unless regulations are made exempting a species, the first introduction of a new species to a given area must be assessed. The Minister can define by regulations the term "given area". Notice as well that an assessment is to be premised on the assumption that organisms will escape. Those experienced in the field indicate that fail-proof containment in the long run is unlikely. Thus one commentator states:

> The occurrence of numerous species of exotic fishes, including non-established species, in waters adjacent to fish farms indicates that nearly every species of exotic fish held or cultured in Florida can be expected to find its way into open waters; ...[53]

and later concludes:

> ... in my experience and in that of others, any aquatic exotic organism being held or reared for culture purposes can be expected to escape or be released into open waters.[54]

The introduction of exotic organisms has also been dealt with by the International Council for the Exploration of the Seas. On Oct. 10, 1973 the Council adopted a Code of Practice to Reduce the Risks of Adverse Effects Arising from Introduction of Non-indigenous Marine Species.[55] Canada is a member of the Council. Essentially the Code suggests that before new introductions are permitted, the importing country examine the species "in its natural environment, to assess its relationship with the members of the ecosystem, including the role played by parasites and diseases" and conduct a "careful assessment of the probable effects of introduction into the new area, including an examination of the effects of any previous introductions of this or similar species in other areas". If the importing country decides to proceed, then the Council recommends that eggs, early larvae or juveniles rather than adults be used and that the specimens brought in be quarantined, bred and only the offspring be actually introduced into the natural environement. Meanwhile effluents from the quarantine facilities should be sterilized. The introduced species should be continuously studied in its new environment. The Council also deals with regular imports or transfers, i.e., those part of current commercial practice. These shipments ought to be examined by qualified

scientific personnel in the country of origin as well as on arrival. Inspection should also take place after transplantation. All of these steps can be incorporated into procedures authorized by the Draft Act, although the Act would not make the I.C.E.S. Code mandatory.

The assessment is to be a public document, available to Canadian citizens and permanent residents upon reasonable request. Notice as well that the reports of the Aquaculture Development Council are to be similarly public (unless the Council otherwise decides). The general subject of access to government documents is dealt with in the Access to Information Act.[56] This statute is laden with exemptions from the general "right to ... access to any record under the control of a government institution" created by s. 4. One such exemption is s. 21, which allows the head of a government institution to "refuse to disclose any record requested under this Act that contains", inter alia, "advice or recommendations developed by or for a government institution or a Minister of the Crown, ... or plans relating to ... the administration of a government institution that have not yet been put into operation", unless the records are more than twenty years old. There is an exemption to the exemption that might be applicable, namely s. 21(2)(b), if the report was "prepared by a consultant or adviser who was not ... an officer or employee of a government institution...." Quite frankly, the relation of the information the Draft suggests should be public to the rights created in the Access to Information Act is ambiguous and unclear. Since s. 2(2) of the latter document says the Access to Information Act "is intended to complement and not replace existing procedures for access to government information ..."

it seems reasonable to clarify the question by specifying the right to access in the aquaculture legislation itself.

The Draft Act also deals broadly with the transfer and inspection of organisms to be used in aquaculture in Canada. A system of aquaculture inspectors is proposed. These inspectors would examine all shipments of flora and fauna to be cultured and all aquaculture facilities. All aquaculture produce not intended for local consumption is already subject to inspection and control under the Fish Inspection Act[57] and regulations. Inspectors are required to inspect for enumerated items, essentially disease and parasites and the escape of organisms, and are empowered to do or require certain things to be done.

It should be noted that the Draft Act is not intended to displace existing fish health and sanitary control of shellfish fisheries regulations enacted under the Fisheries Act. In fact, these regulations are expressly adopted as applicable, with any necessary modifications, to aquaculture. Consistent with the basic philosophy of separating aquaculture as an activity distinct from the capture fishery, however, the Draft Act attempts to finesse any suggestion that other fisheries controls apply to aquaculture of their own force by specifically excluding them. Cabinet may nevertheless adopt fisheries regulations and apply them to aquaculture. Thus it should be possible to coordinate a consistent system for those important matters that relate to "fish as fish" rather than to the radically different culturing and capturing activities in which they are set. More will be said on these matters later in this report.

Some existing federal regulations under the Fisheries Act require gear to be marked, and s. 12 of the Draft continues this notion. Part of the philosophy is to protect navigators, and thus is similar to requirements under the Navigable Waters Protection Act,[58] while the other part relates to giving notice to fishermen and other individuals of the bounds of an area containing private property.

Also in the nature of constraints upon aquaculture are the licensing requirements for two distinct forms of it: sea ranching and open-ocean mariculture. This aspect of the Draft Act is quite anticipatory and future-looking. It should first be appreciated that by sea ranching I do not mean pen culturing or grow-out of salmonids or other species, but rather their direct release into the open, natural environment. There they will mix with wild stocks, at least in the oceans, and likely range outside of the province of origin. Also by open-ocean mariculture I mean culturing that takes place in tidal waters outside the bounds of a province. It should secondly be appreciated that there are other geographic areas under federal control where aquaculture could possibly be carried on, such as the Yukon and Northwest Territories, national parks, Indian reserves, public harbours and national defence lands. These have not been included here either because aquaculture is not a likely candidate activity or there are distinct decision-making bodies that should control aquaculture under their own institutional structures, e.g., the Minister and Band Councils under the Indian Act in connection with reserve lands. Thus licensing and leasing could be accomplished via other legislative mandates, although the

conduct of aquaculture would, without statutory exemption, be subject to such controls in the Draft Act as disease inspection.

The pressures and problems of such forms of aquaculture have not been well documented or thought out. For example,[59] in Washington State private sea ranching of Pacific salmon is prohibited, while in Oregon it is permitted. In Oregon the private culturist has to rely on a sufficient number of his fish escaping the legal harvest by commercial and recreational fishermen in order to realize a profit. In contrast to these two positions, Alaska has pioneered a mixed form of sea ranching in which fishermen's cooperatives and other non-profit groups "privately" produce salmon to enhance the natural fishery: fishermen benefit by better catches in the wild. In British Columbia, a salmonid enhancement program operates, but it is publicly funded and operated without private or non-governmental input. There the sole object is to improve the public fishery. It is unclear what pressures and problems exist now in B.C. for privatization of the process. Similar uncertainties exist for offshore development. Cultivating seabed shellfish, such as scallops, is a possibility, as would be the creation of offshore feeding stations or artificial reefs, or culturing in conjunction with offshore structures such as "villages" to house the petroleum industry or research establishments.[60] In short, the future is unpredictable and some flexibility in preparing for and adjusting to it is desirable. Thus the provisions in the Draft Act dealing with these issues are brief and discretionary and leave much to such regulations as Cabinet might think advisable in the future. This also could be the

subject of consideration by the Aquaculture Development Council, which if appropriate could recommend more detailed regulations.

Generally, it will be observed that much has been left to regulations to be enacted by the Governor-in-Council (Cabinet) as deemed desirable. Included in the list in s. 18 of the Draft are matters like insurance and damage compensation schemes. The desirability of these schemes is frequently mentioned. It has been suggested that insurance premiums with private insurers may be too high or coverage unavailable.[61] The fact that crop insurance is available to land farmers is mentioned as evidence that the same is needed for water farmers. Again, the risks associated with pollution and the possibility of long-term water-quality deterioration are said to justify some form of damage compensation scheme. The Draft Act takes no stand on these issues, but authorizes regulations to provide for them if it is thought useful. Again, it is anticipated that these are issues that should be addressed by the Aquaculture Development Council, which can explore them in some depth, consider their costs, weigh them with other funding priorities, and decide on their advisability. In short, the power is there if planning and priorities indicate the need. The same thought unlies all of s. 18 of the Draft Act.

Another matter of note contained in the Draft Act relates to statistics. Information allowing these to be compiled must be made available. As the Industry Task Force states: "... the orderly development of an industry becomes impossible unless rigorous statistics on the performance of that industry are available to those involved in

planning.... A comprehensive database must be developed and maintained."[62] Thus provision is made for this in s. 14 of the Draft.

A subject not dealt with in the Draft Act is pollution. Most aquaculture in Canada is conducted in open systems in which water is freely introduced from outside sources and freely discharged back to nature. These systems, especially those in association with intensive culturing, can be sources of pollution.[63] And water pollution obviously can impact adversely on the wild fishery. The reasons for leaving pollution concerns out of this Draft are two-fold. First, the provinces have equal jurisdiction over this matter and in general exercise this power through environmental protection legislation. To the extent they have not dealt with this problem through such legislation, then they can do so through provincial aquaculture statutes. Second, all forms of water pollution tending to adversely affect fish and fish habitat are already dealt with under s. 33 of the federal Fisheries Act. The comprehensive jurisdiction asserted there should be the vehicle to address the federal concern over pollution from aquaculture.

Three other subject matters left to regulations in the Draft Act are feeds, vaccines and fertilizers. As indicated in "Federal Aquaculture Regulation" (p. 57), the Feeds Act[64] and regulations under it include within their scope feed to be given to fish. It seems appropriate to leave fish feed regulation where it now stands, as part of a generic statute dealing with feeds. It might be noted that if food is to include live organisms or their eggs, concerns not addressed by the Feeds Act may arise, namely, concerns related to introducing undesirable species or disease and

parasites. In this case the provisions of the Draft relating to inspection and the introduction of exotic species are broad enough to include feed as well as the primary candidates for culturing activities.

The subject of vaccines, antibiotics, drugs, fertilizers, pesticides and other chemicals are likewise left to be regulated as the need arises. Concerns here might relate to environmental effects outside the aquaculture operation and to the accumulation of chemicals in food intended for human consumption. There is a Fertilizers Act,[65] but it is geared to the use of fertilizers in agriculture and not to their use in water. The same may be said for the Animal Disease and Protection Act[66] and regulations enacted under its authority: their provisions revolve around the domestic animals used in traditional agriculture and do not likely relate to fish and other organisms used in aquaculture. Indeed the Animal Disease and Protection Regulations[67] deal with veterinary biologics from the standpoint of their importation, manufacture, testing and sale and not with respect to their actual use. As a minimum it may be that each such substance should be both approved for use and limited as to quantities of dispersion. If this is desirable, Cabinet is authorized to legislate by regulations. It should also be noted that some control over what is put into water in open culturing systems is asserted by the "deleterious substances" prohibition in the Fisheries Act and by most provincial environmental protection legislation. The latter generally requires a permit or approval before a polluting substance is discharged. Weaknesses in these systems may exist in terms of their tendency to prohibit outright rather than regulate, and in the requirement that these chemicals, used for their beneficial

properties, must nevertheless be found to have negative, polluting qualities before being controlled.

A final point related to the Draft as a whole relates to the question of detail. The Draft Act is open to attack on at least two fronts. To some it may provide too many details. For example, s. 12 dealing with the marking of gear might be left entirely to regulations. To others it may not provide enough details. For example, on what basis should sea ranching be permitted? No doubt the Draft could be further refined as more people with specialized knowledge and particular concerns examine its provisions and as particular policy decisions are made. In this sense, I do not pretend that the terms of the Draft are immutable. Its importance is in raising in a comprehensive way a range of issues and in suggesting in a specific way appropriate choices and priorities.

In keeping with this, it should be appreciated that the principal statute should be as brief as reasonable. It should create a broad framework, and deal with only the major topics. Details should be left to a separate, complementary set of regulations. The section of the statute authorizing regulations should be broad enough to anticipate future contingencies that might make regulations desirable as well as the areas of present need. In the final analysis, what is detail to be left to regulation, both for the present and in the future, and what should be in the statute itself are questions of judgment and balance.

D. The Fisheries Act

A very important issue requiring detailed explanation is how a new National Aquaculture Act will fit with the existing Fisheries Act. Two

general points must be noted. First, as previously mentioned, a conceptual underpinning of a new aquaculture statute is that aquaculture is a different activity than fishing. Therefore, it is important to sever all reliance upon the Fisheries Act as a source of regulatory law for aquaculture. The second point is that despite the discreteness of the activities, fisheries and aquaculture share a common subject matter: they both deal with fish. Therefore, statutory provisions that deal with fish as fish can in general apply in both fields. For example, the Fish Health Protection Regulations[68] and the Sanitary Control of Shellfish Fisheries Regulations[69] deal with the physical condition of the fish and so with matters of importance to both the wild fisheries and the aquaculture industry.

Section 19 of the Draft attempts to accomplish these objectives. Three points bear emphasis. First, it should be clear that fisheries laws apply to aquaculturists when engaged in fisheries, i.e., in capturing wild organisms. Second, any regulations passed under the Fisheries Act could be adapted by Cabinet and applied to aquaculture and, so as to avoid any doubt on the issue, the fish health protection regulations and the sanitary control of shellfish fisheries regulations are made applicable. Third, the Fisheries Act and regulations must not be applicable to aquaculture, unless a conscious decision to the contrary is made, since their provisions were not designed with aquaculture in mind.

The latter point needs amplification. A major portion of "Federal Aquaculture Regulation" is devoted to demonstrating in detail that Canadian fisheries legislation views aquaculture as a fisheries matter and thereby

creates ambiguities concerning whether provisions obviously aimed at fishing activities also sweep into their ambit culturing activities. Additionally other provisions in the Fisheries Act and its regulations such as those relating to oyster leasing and the licensing of fish farms, clearly are intended to apply to aquaculture. Aquaculture must be freed of its existing entanglement in fisheries legislation. This might be done in two ways.

The cleaner method is to repeal all of the aquaculture provisions in the Fisheries Act and regulations and then to enact in the Fisheries Act and each set of regulations a clause exempting aquaculture. An example of the latter is s. 3(2) of the Saskatchewan Fishery Regulations,[70] found in "Federal Aquaculture Regulation" at p. 47, although this provision is not as broad in its application as would be desirable. At least two problems exist with the approach. One is that the method is cumbersome, in that a couple of dozen documents might need an exemption clause and maybe the repeal of one or more sections. Included in this would be the Fisheries Act itself. Embarking upon these limited amendments raises other complicating issues, such as whether the federal government really intends to abandon oyster leasing, and whether each piece of legislation should be revised on a more comprehensive basis, i.e., as part of an overall modernization of fisheries legislation. A second problem is that the inland provinces may not be concerned about filling the void left by abandoning the existing aquaculture provisions. This may mean doing different things for different provinces, and this could be complicated. Nevertheless, once achieved, severence will be complete and will provide a

sound basis for future developments. Note that these amendments would be best presented directly as Fisheries Act and regulations amendments, rather than be contained in the new National Aquaculture Act.

A second way of proceeding is to leave the fisheries legislation intact, at least for the time being, but to provide, as the Draft Act does, that generic types of provisions in the Fisheries Act and regulations do not apply to culturing activities. This will in large measure remove ambiguities about whether certain "fishing" provisions apply to "culturing". It does not repeal, however, the provisions directly concerning aquaculture. The Draft Act attempts to accommodate this, making room for provincial aquaculture licences and deeming these to meet any federal aquaculture licensing provisions that may be in place in a particular province (of course this would not apply to sea ranching or offshore mariculture). In short, a provincial aquaculture licence renders a federal requirement contained in the Fisheries Act or regulations redundant and therefore of no consequence. Other federal fisheries requirements may be viewed individually and repealed if necessary or simply allowed to lapse into disuse and, in the fullness of time, eventually repealed. I am unaware of any situations where reliance upon disuse is likely to create problems. The value of this approach stems from expediency.

In summary, the Draft Act avoids dealing with the repeal of existing provisions in the Fisheries Act and regulations. Section 19 of the Draft attempts to accommodate the new with the old. If the will exists to proceed with the National Aquaculture Act, it may be more desirable to

amend the Fisheries Act and regulations directly. General exemptions clauses would then be necessary, and most, if not all, of the provisions outlined in "Federal Aquaculture Regulation" between page 27 and page 47 should be repealed or revised.

E. The Provincial Role

As was indicated in the Stage One discussion, the process of considering the federal role in aquaculture and drafting provisions containing the details of that role inevitably requires a reflection on what role the provinces should play in regard to aquaculture. This paper was not conceived of as a mode for directly exploring the provinces' roles, and it would be inappropriate to go into this here. Considerable details and a suggested draft provincial act are contained in Aquaculture: The Legal Framework.[71] Suffice it to say that this report consciously creates a lacuna in relation to the regulatory framework that should ideally exist, and that would be recommended in this report if Canada were a unitary state. This gap is intended to leave room for the provinces to play a major role. In particular it leaves to the provinces at a minimum exclusive responsibilities for licensing aquaculturists operating in the province, leasing areas of subaquatic lands and seabeds owned by the province, and defining the property rights of the culturist. Undoubtedly, provinces will also want to participate in questions related to the introduction of non-indigenous species. Other matters may also be dealt with as seen fit, for example disease and parasite control, water use, pollution, planning approval and marketing. The Draft Act also authorizes

the Minister to delegate the power to administer federal aquaculture regulations to the provinces, which would allow the provinces to exercise the same control over aquaculture as most of them now exercise in relation to freshwater fisheries. The overriding point, however, is that the provinces have major powers and responsibilities related to aquaculture and are not in any sense junior partners concerning the future of aquaculture.

APPENDIX "A"

Letter sent to Provincial Officials
At Stage 1
and List of Those Officials

November 13, 1984

RE: THE FEDERAL ROLE IN AQUACULTURE

I am writing to solicit any reaction you may have to the enclosed document. As you can readily see, it represents the introductory (or Stage 1) portion of a report I am doing under contract with D.F.O. on the federal role in aquaculture. The ultimate objective of my report (due at the end of January, 1985) is to suggest what federal legislation might look like. I am proposing to do this by attempting to actually draft that legislation, likely, at least for discussion purposes, by showing what a national aquaculture statute might look like. This report is the sequel, or follow up, to "Federal Aquaculture Regulation", Canadian Technical Report of Fisheries and Aquatic Sciences No. 1252, which I believe was earlier mailed to you.

Since the federal role suggested affects by implication what role the provinces might end up playing, I am coming to you, and officials in the other provinces, to see what advice you might provide to me. It is important to note that my report is intended to be "at arms length" from the federal department's own views, and therefore an independent consideration of the issues at stake. It will thus be helpful to me in my thinking to know what you or others working in the province think.

Please be assured that I will not regard any response you care to make as representing your government's position (unless you say it is). My report might be a basis for political discussions in the future, but it is not intended now to represent a consensus or a form of government-to-government agreement or understanding. You will not be bound by your response, and indeed I am really seeking your input as knowledgeable individuals rather than government representatives.

May I thank you in advance for taking the time to reply.

Yours faithfully,

Bruce H. Wildsmith
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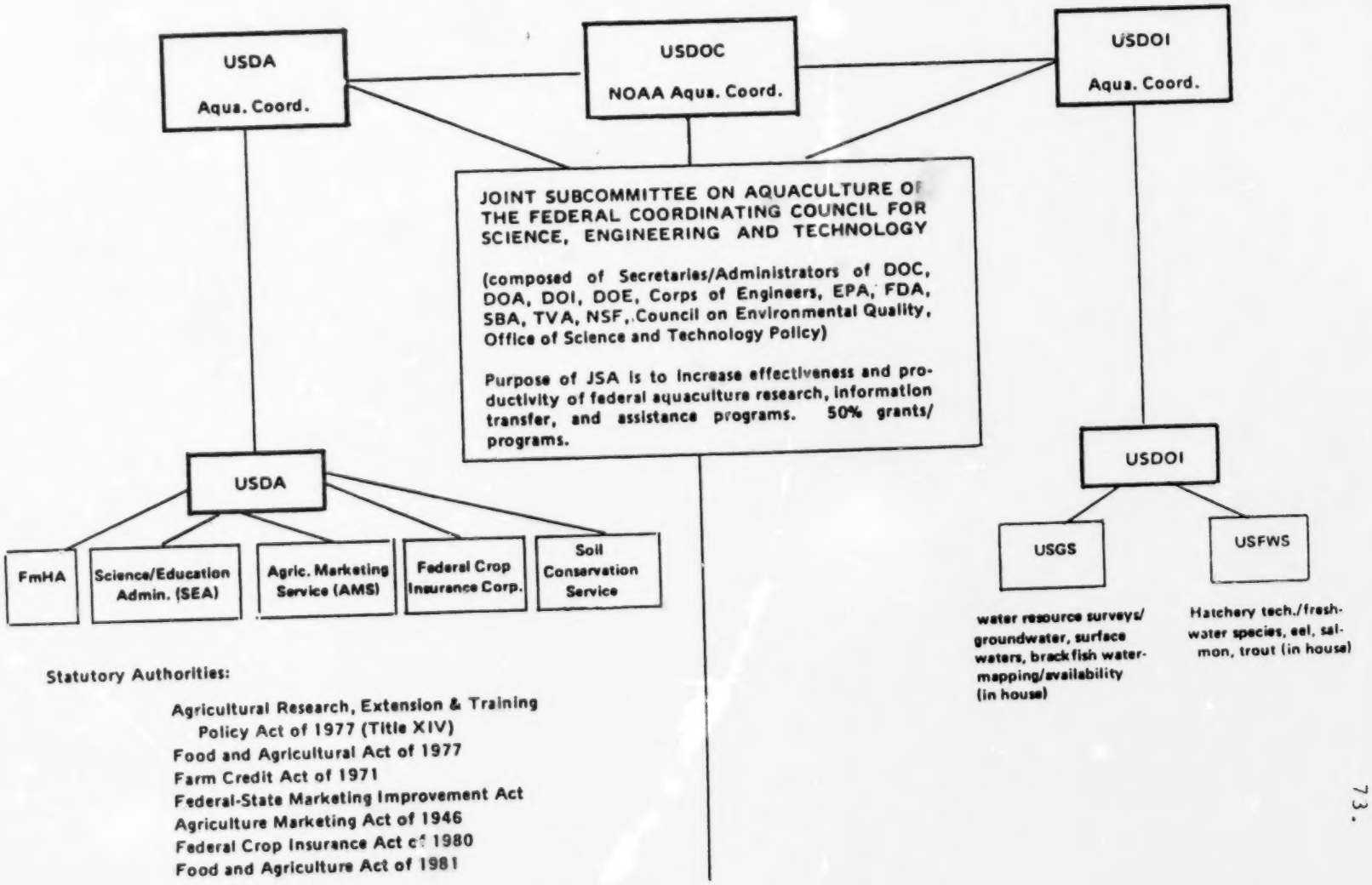
From: Fitzgerald, W.J. Jr. 1982. Aquaculture Development Plan for the Territory of Guam. U.S. Dept. of Commerce, Govt. of Guam, at p. 31, 32, 39.

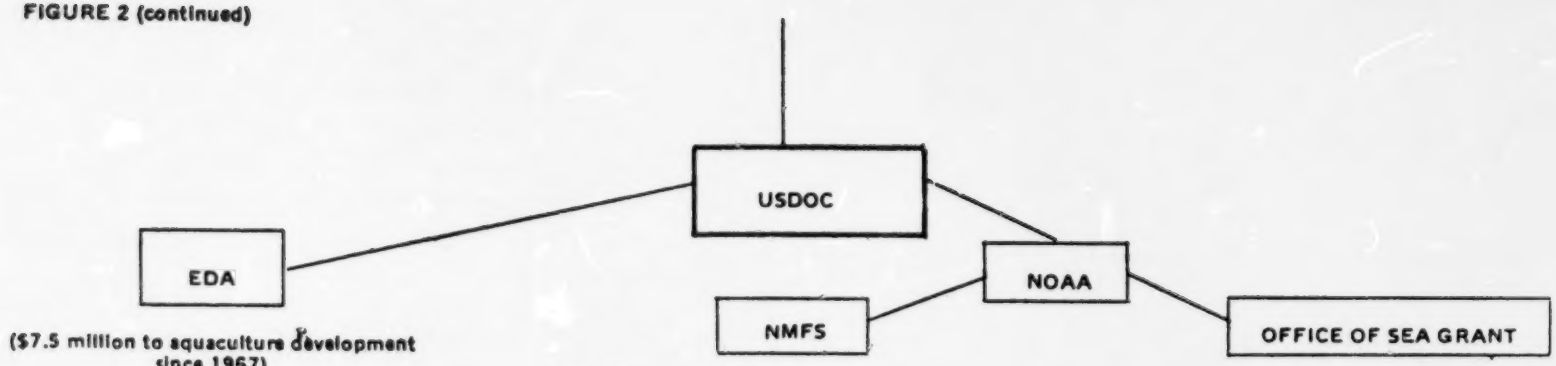
FIGURE 2. ORGANIZATION OF FEDERAL GOVERNMENT AQUACULTURE PROGRAM


USDA
Aqua. Coord.
USDOC
NOAA Aqua. Coord.
USDOI
Aqua. Coord.
JOINT SUBCOMMITTEE ON AQUACULTURE OF THE FEDERAL COORDINATING COUNCIL FOR SCIENCE, ENGINEERING AND TECHNOLOGY
(composed of Secretaries/Administrators of DOC, DOA, DOI, DOE, Corps of Engineers, EPA, FDA, SBA, TVA, NSF, Council on Environmental Quality, Office of Science and Technology Policy)
Purpose of JSA is to increase effectiveness and productivity of federal aquaculture research, information transfer, and assistance programs. 50% grants/ programs.
USDA
FmHA
Science/Education Admin. (SEA)
Agric. Marketing Service (AMS)
Federal Crop Insurance Corp.
Soil Conservation Service
USDOI
USGS
USFWS
water resource surveys/ groundwater, surface waters, brackfish water-mapping/availability (in house)
Hatchery tech./fresh-water species, eel, salmon, trout (in house)

Statutory Authorities:

Agricultural Research, Extension & Training Policy Act of 1977 (Title XIV)
Food and Agricultural Act of 1977
Farm Credit Act of 1971
Federal-State Marketing Improvement Act
Agriculture Marketing Act of 1946
Federal Crop Insurance Act of 1980
Food and Agriculture Act of 1981

FIGURE 2 (continued)



($7.5 million to aquaculture development since 1967)

Statutory Authorities:
Commercial Fisheries R & D Act of 1964; Fishery Conservation and Management Act of 1976; Central, Western & South Pacific Fisheries Development Act of 1972 (the latter in conjunction with funding from Saltonstall-Kennedy funds thru PIDC/PTDF- $4 million '80 - '81, $5 million '82.

Statutory Authorities:
National Sea Grant College Act

OTHER FEDERAL GOVERNMENT SUPPORT

USAID

Research in low technology aquaculture systems with its application to developing countries. Under Title XII of Foreign Assistance Act developing the Collaborative Research Support Program in Aquaculture Pond Dynamics.

USDOE

Under Ocean Thermal Energy Conversion Research, Development & Demonstration Act of 1980. Funds available for FY '82 for pilot/demonstration of OTEC/Aquaculture systems in islands and territories. Other DOE support in biomass for aquaculture feed/nutrients/thermal effluents.

EPA

Aquaculture waste-treatment systen qualify for 85% design constructic grant and 100% replacement or modi cation grant (baitfish only, FDA pr hibits for foodfish).

Health & Human Resources

Qualify each island group under National Shellfish Sanitation.

NSF

Research Applied to National Needs (RANN) program for small scale appropriate technology.

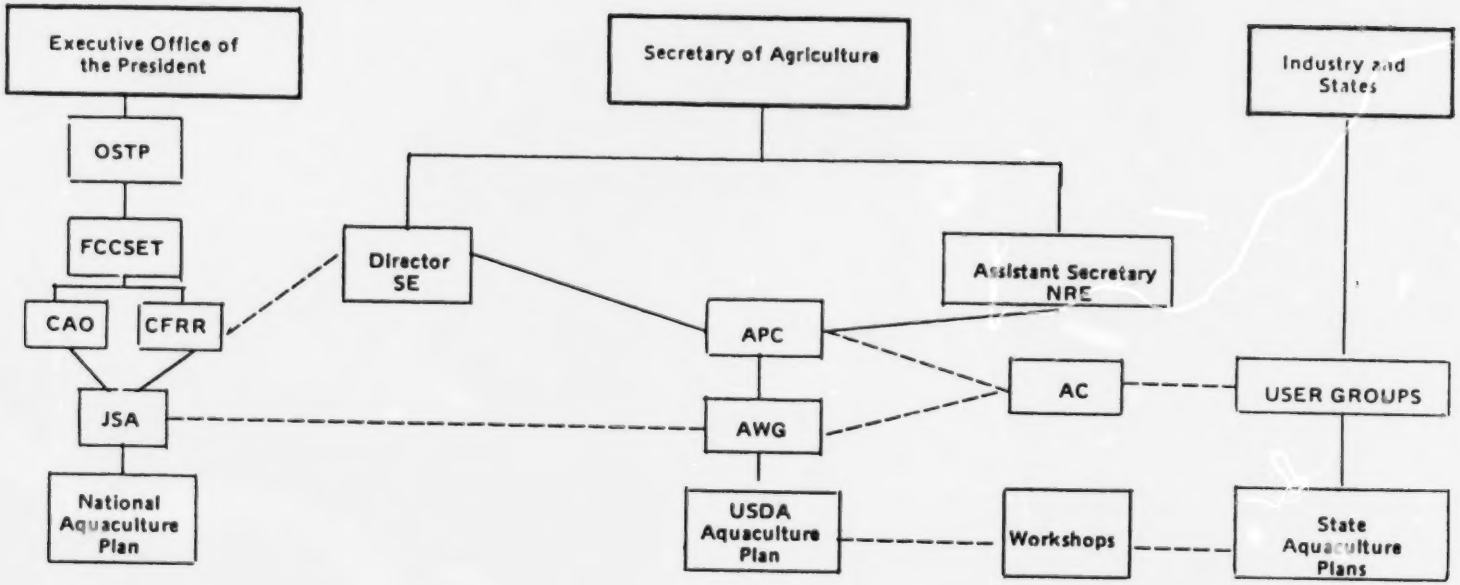
SBA

Expansion/development loans to e pand commercial demonstration.

KEY TO ABBREVIATIONS

USDA - U.S. Dept. of Agriculture
USDOC - U.S. Dept. of Commerce
USDOI - U.S. Dept of the Interior
USDOE - U.S. Dept of Energy
NOAA - National Oceanic and Atmospheric Administration
EPA - Environmental Protection Agency
FDA - Food and Drug Administration
SBA - Small Business Administration
TVA - Tennessee Valley Authority
NSF - National Science Foundation
FmHA - Farmers Home Administration
USGS - U.S. Geological Service
USFWS - U.S. Fish and Wildlife Service
EDA - Economic Development Administration
NMFS - National Marine Fisheries Service
USAID - U.S. Agency for International Development

FIGURE 3. AQUACULTURE COORDINATION U. S. DEPARTMENT OF AGRICULTURE
(AQUACULTURE A PROGRAM FOR THE EIGHTIES, USDA)



1. AC - Aquaculture Coordinator
2. APC - Aquaculture Policy Committee
3. AWG - Aquaculture Work Group
4. CAO - Committee on Atmosphere and Oceans
5. CFRR - Committee on Food and Renewable Resources
6. FCCSET - Federal Coordinating Council on Engineering and Technology
7. JSA - Joint Subcommittee on Aquaculture
8. NRE - Natural Resources and Environment
9. OSTP - Office of Science and Technology Policy
10. SE - Science and Education

ENDNOTES

(Note: Complete citations are contained in the Bibliography)

1. 1983. Report of the Proceedings of the National Aquaculture Conference, at p. 3.

2. Wildsmith, B.H. 1983. "Federal, Provincial, and Municipal Government Roles in Aquaculture".

3. 1984. Aquaculture: A Development Plan for Canada (Working), at p. 32.

4. Aquaculture Act, S.N.S. 1983, c. 2, s. 2(b).

5. Wildsmith, B.H. 1984. "Federal Aquaculture Regulation".

6. This broad-based line of approach is the one taken, for example, at the National Aquaculture Conference, supra note 1, and by the Industry Task Force on Aquaculture, supra note 3.

7. Supra, note 2.

8. Wildsmith, B.H. 1982. Aquaculture: The Legal Framework, at p. 33-91.

9. Reference Re Anti-Inflation Act (1976), 68 D.L.R. (3d) 452 (S.C.C.).

10. R.S.C. 1970, c. N-19.

11. R.S.C. 1970, c. F-12.

12. See: Yukon Act, R.S.C. 1970, c. Y-2, s. 16, as amended, and Northwest Territories Act, R.S.C. 1970, c. N-22, s. 13, as amended.

13. (1980), Pub. L. No. 96-362, 94 Stat. 1198.

14. R.S.C. 1970, c. F-14.

15. Details are provided in "Federal Aquaculture Regulation", supra, note 5.

16. Driedger, E.A. 1976. The Composition of Legislation, at p. xvi-xxiii.

17. "Aquaculture Development" forms ch. 4 of the "Public Resources Code", which forms Division 1 of the "Fish and Game Code" of California. Section 834 indicates that the advisory committee is to consist of, inter alia, "representatives of a public institution of higher education, the commercial fishing industry, the recreational fishing

industry, the freshwater fish farming industry, and the marine and brackish water aquaculture industry...." Section 834 also states: "Before selecting industry members of the advisory committee, the director shall consult with, and consider qualified delegates nominated by, organizations representing the aquaculture industry." See F.S. Conte and A.T. Manus. Undated. Aquaculture and Coastal Zone Planning, at p. 17.

18. R.S.C. 1970, c. H-4.

19. Stats. Can. 1978-78, c. 13.

20. R.S.C. 1970, c. F-24.

21. R.S.C. 1970, c. F-21.

22. R.S.C. 1970, c. F-22.

23. R.S.C. 1970, c. F-23.

24. Stats. Can. 1977-78, c. 30.

25. R.S.C. 1970, c. F-13.

26. R.S.C. 1970, 1st Supp., c. 37.

27. R.S.C. 1970, c. F-25.

28. National Defence Act, R.S.C.1970, c. N-6, as amended by the Government Organization (Scientific Activities) Act, 1976, Stats. Can. 1976-77, c. 24, s. 63.

29. Employment and Immigration Reorganization Act, Stats. Can. 1976-77, c. 54, ss. 15-25.

30. National Design Council Act, R.S.C. 1970, c. N-5.

31. Stats. Can. 1976-77, c. 24.

32. Stats. Can. 1976-77, c. 24.

33. R.S.C. 1970, c. S-5.

34. R.S.C. 1970, c. N-14.

35. R.S.C. 1970, c. M-9.

36. R.S.C. 1970, c. C-2.

37. R.S.C. 1970, c. E-1.

38. R.S.C. 1970, 1st Supp., c. 41.

39. Stats. Can. 1976-77, c. 24.

40. Aquaculture: A Development Plan for Canada (Final). 1984. At p. 17.

41. Cook, R.H. and R.E. Drinnan. 1984. "Planning for Aquaculture Development in Canada: A Maritimes Perspective", at p. 85.

42. R.S.C. 1970, 1st Supp., c. 41.

43. R.S.C. 1970, c. C-2.

44. Supra, note 40, at p. 19.

45. R.S.C. 1970, c. N-5.

46. R.S.C. 1970, c. A-4.

47. Cook, R.H. and R.E. Drinnan. 1984. "Planning for Aquaculture Development in Canada: A Maritimes Perspective", at p. 85. See also Oyster Culture in Maryland '79, at p. 63, where early completion of the Chesapeake Bay - bottom survey is noted as the third recommendation of the Maryland Oyster Resource Expansion Task Force.

48. Perret, N.G. 1970. Land Capability Classification for Wildlife, at p. 1.

49. R.S.C. 1970, c. M-12.

50. Anderson, J.M. 1984. "Taming the Atlantic Salmon", at p. 7-8.

51. Stats. Can. 1973-74, c. 21.

52. C.R.C. 1978, c. 1035.

53. Courtenay, W.R. Jr. 1979. "Biological Impacts of Introduced Species and Management Policy in Florida", at p. 246.

54. Ibid., at p. 251.

55. This Code of Practice is reproduced in Mann, R. 1979. Exotic Species in Mariculture, at p. 355-57.

56. Stats. Can. 1980-81-82, c. 111.

57. R.S.C. 1970, c. F-12.

58. R.S.C. 1970, c. N-19.

59. See generally J.E. Thorpe [ed.]. 1980. Salmon Ranching.

60. See generally J.A. Hanson [ed.]. 1974. Open Sea Mariculture: Perspectives, Problems and Prospects.

61. In a recent article an aquaculture insurance broker stated:

> "The principle of Aquaculture Insurance is the same as for any other form of insurance - that is, to spread the losses of the few among the many. At this stage in Canada the many losses are being spread amongst the few fish farmers. Until such time as Aquaculture becomes widespread, we do not expect any reduction whatsoever in current pricing."

Ian Angus. 1984. "Aquaculture Insurance", at p. 15.

62. Supra, note 40, at p. 15.

63. See, e.g., Ehrlich, K.F. "Canada Needs Water Recycling Systems", at p. 16.

64. R.S.C. 1970, c. F-14.

65. R.S.C. 1970, c. F-9.

66. Stats. Can. 1974-75-76, c. 86.

67. C.R.C. 1978, c. 296.

68. C.R.C. 1978, c. 812.

69. C.R.C. 1978, c. 832.

70. SOR/79-486.

71. Supra, note 8.

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Bockrath, J. and K. Marcel. 1980. "Closed Cycle Mariculture and the Food, Drug and Cosmetic Act". 18 Houston L. Rev. 43-102.

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> Four Norwegian research councils are discussing the possibility of a joint body to prepare a national plan for the new industry ... an amount equal to U.S. $242 million has been granted towards technological and other improvements in aquaculture.
>
> A plan for a national research programme has been proposed involving a grant of $1.2 million in 1984, increasing by a further $1.2 million for each of the next ten years.

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